



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT



APR 08 2014

Mr. Tim Lovley
Macpherson Oil Company
PO Box 5368
Bakersfield, CA 93388

**Re: Proposed Authority to Construct/Certificate of Conformity (Minor Mod)
District Facility # S-1703
Project # 1140704**

Dear Mr. Lovley:

Enclosed for your review is the District's analysis of an application for Authority to Construct for the facility identified above. You requested that a Certificate of Conformity with the procedural requirements of 40 CFR Part 70 be issued with this project. The project adds up to 350 thermally enhanced oil recovery (TEOR) wells increasing the number of approved wells from 250 to 600.

After addressing all comments made during the 45-day EPA comment period, the District intends to issue the Authority to Construct with a Certificate of Conformity. Prior to operating with modifications authorized by the Authority to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

If you have any questions, please contact Mr. Leonard Scandura, Permit Services Manager, at (661) 392-5500.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

Enclosures

cc: Gerardo C. Rios, EPA (w/enclosure) via email

Sayed Sadredin
Executive Director/Air Pollution Control Officer

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San Joaquin Valley Air Pollution Control District

Authority to Construct Additional TEOR Wells

Facility Name: Macpherson Oil Company
Mailing Address: PO Box 5368
Bakersfield, CA 93388
Contact Person: Tim Lovley
Telephone: 661 368-3909
Application #(s): S-1703-143-20
Project #: S1703, 1140704
Deemed Complete: February 27, 2014

Date: March 25, 2014
Engineer: Richard Edgehill
Lead Engineer: Allan Phillips *ABOVE ADE*
MAR 28 2014

I. Proposal

Macpherson Oil Company (MOC) has requested an Authority to Construct (ATC) permit to add up to 350 thermally enhanced oil recovery (TEOR) wells increasing the number of approved wells from 250 to 600. Additional heat exchangers, knockouts, separators, condensate pumps, and compressor stations will be installed as necessary to handle the expected increase in gas volume. Applicant is also requesting the option to operate the wells with open or closed casing vents.

Note that the gas processed by S-1703-143 contains less than 10% VOCs by weight and therefore, according to District policy SSP 2015, fugitive emissions are not assessed. The current PTO and proposed ATC include permit conditions requiring periodic monitoring and record keeping verifying the gas VOC content is 10% or less by weight.

Disposition of Outstanding ATCs

ATC S-1703-143-19 (connect new tank '211 to existing vapor control system) will be implemented prior to the proposed ATCs and will serve as the base document (applicant email 2-27-14). ATC S-1703-143-19 and current PTO S-1703-143-17 are included in **Attachment I**.

MOC received their Title V Permit on May 31, 2001. This modification can be classified as a Title V minor modification pursuant to Rule 2520, Section 3.20, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. MOC must apply to administratively amend their Title V Operating Permit to include the requirements of the ATC(s) issued with this project.

II. Applicable Rules

Rule 2201	New and Modified Stationary Source Review Rule (4/21/11)
Rule 2410	Prevention of Significant Deterioration (6/16/11)
Rule 2520	Federally Mandated Operating Permits (6/21/01)
Rule 4102	Nuisance (12/17/92)

Rule 4401 Steam-Enhanced Crude Oil Production Wells (12/14/06)
CH&SC Section 41700 Health Risk Assessment
CH&SC Section 42301.6 School Notice
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387: CEQA Guidelines

III. Project Location

The existing operation spans several sections in the MOC's HOCSS (Round Mountain Field), Township 28S, Ranges 28E and 29E and will now include Section 29, T28S, R29E. A complete list of locations for the existing and proposed operation is provided below. All of these locations are within a remote oilfield without a K-12 school in the area. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

Lease	Section	Township	Range
Thomas, Bell, Larkin	12	28S	28E
KCL	13	28S	28E
Caldwell	7	28S	29E
Olcese	17	28S	29E
	18	28S	29E
USL	19	28S	29E
USL	20	28S	29E
USL	29	28S	29E

A location map is included in **Attachment II**.

IV. Process Description

Steam is utilized to enhance heavy oil recovery. Steam generators produce steam that is injected into the strata to reduce viscosity. Condensed water is extracted with the produced oil and routed to vapor-controlled water/oil separators and tanks. Vapors from affected well vents are collected and routed to knockouts and compressor stations for injection back into the formation or use as supplemental fuel in steam generators.

Proposed Modification

Applicant is requesting the addition of 350 wells to increase the current number to up to 600.

Additional compressor stations (see **Attachment III** for details) will be added as necessary to boost casing pressure from wells in remote areas or wells with low casing gas pressures to the current operating pressure of the existing casing vent vapor collection system. This will prevent the buildup of excessive back pressure on low pressure production wells.

Compressor manufacturer's information is provided in **Attachment III**.

EQUIPMENT LISTING:

Pre-Project Equipment Description:

ATC S-1703-143-19

MODIFICATION OF THERMALLY ENHANCED OIL RECOVERY (TEOR) OPERATION SERVING UP TO 250 WELLS INCLUDING HEAT EXCHANGERS, SEPARATORS, KNOCKOUTS AND COMPRESSOR STATIONS WITH OPEN OR CLOSED CASING VENTS CONNECTED TO WELL VENT VAPOR CONTROL SYSTEM AND TANK VAPOR CONTROL SYSTEMS S-1703-139, -144, AND -184 SERVED BY H₂S SCRUBBER SYSTEM WITH COMPRESSED VAPOR PIPING TO STEAM GENERATORS S-1703-157, '-158, '-159, '-160, '-161, AND '-162 FOR INCINERATION OF NONCONDENSIBLE VAPORS OR TO GAS DISPOSAL WELL: CONNECT TANK S-1703-211 TO VAPOR CONTROL SYSTEM

Proposed Modification:

S-1703-143-20

MODIFICATION OF THERMALLY ENHANCED OIL RECOVERY (TEOR) OPERATION SERVING UP TO 250 WELLS INCLUDING HEAT EXCHANGERS, SEPARATORS, KNOCKOUTS AND COMPRESSOR STATIONS WITH OPEN OR CLOSED CASING VENTS CONNECTED TO WELL VENT VAPOR CONTROL SYSTEM AND TANK VAPOR CONTROL SYSTEMS S-1703-139, -144, AND -184 AND TANK '-211 SERVED BY H₂S SCRUBBER SYSTEM WITH COMPRESSED VAPOR PIPING TO STEAM GENERATORS S-1703-157, '-158, '-159, '-160, '-161, AND '-162 FOR INCINERATION OF NONCONDENSIBLE VAPORS OR TO GAS DISPOSAL WELL: ADD UP TO 350 THERMALLY ENHANCED CRUDE OIL PRODUCTION WELLS, HEAT EXCHANGERS, GAS/LIQUID SEPARATORS, KNOCKOUTS, CONDENSATE PUMPS, AND COMPRESSOR STATIONS, AND ALLOW OPERATION OF WELLS WITH OPEN OR CLOSED VENTS

Post-Project Equipment Description:

S-1703-142-20

THERMALLY ENHANCED OIL RECOVERY (TEOR) OPERATION SERVING UP TO 600 WELLS INCLUDING HEAT EXCHANGERS, SEPARATORS, KNOCKOUTS AND COMPRESSOR STATIONS WITH OPEN OR CLOSED CASING VENTS CONNECTED TO WELL VENT VAPOR CONTROL SYSTEM TANK VAPOR CONTROL SYSTEMS S-1703-139, -144, AND -184 SERVED BY H₂S SCRUBBER SYSTEM WITH COMPRESSED VAPOR PIPING TO STEAM GENERATORS S-1703-157, '-158, '-159, '-160, '-161, AND '-162 FOR INCINERATION OF NONCONDENSIBLE VAPORS OR TO GAS DISPOSAL WELL

EMISSION CONTROL TECHNOLOGY EVALUATION:

The existing well head casing vent vapor control system collects non-condensable vapors from TEOR wells with open casing vents and routes those vapors to steam generators for incineration or to a disposal well for underground injection. The production from the TEOR wells with closed casing vents is routed to existing production tanks equipped with District approved tank vapor control systems. The well vent vapor control system and tank vapor control systems are required to be maintained in a vapor tight condition. The VOC content of the well vent vapors is expected to remain at < 10% by weight.

VII. General Calculations

A. Assumptions

- The equipment operates 8760 hours per year (applicant)
- Tanks receiving production from wells operated with closed casing vents are equipped with 99% vapor control.
- The VOC content of the vapors in the vapor control systems does not exceed 10% by weight (current PTO). In accordance with District SSP 2015 policy "Quantifying Fugitive VOC Emissions at Petroleum and SOCMF Facilities", VOC emissions are not assessed to piping and components handling vapor streams with a VOC content of 10% and therefore fugitive emissions components do not emit VOCs.
- For calculation of the increase in GHG emissions the following increase in component count was submitted with the application (**Attachment IV**):

Increase in Fugitive Emissions Component Counts (Gas/Light Liquid Service)

	Valves	Others	Connectors	Flanges
S-1703-143	6,000	1,200	10,000	12,200

*as worst case for HRA emissions above components assumed to be in gas service.

- GHG fugitive emissions correspond to methane emissions.
- GWP for CH₄ = 23 lb-CO₂e per lb-CH₄

District Policy FYI-283 (6/16/16) "Quantifying Fugitive Emissions in Petroleum and SOCMF Operations for use in Risk Management Review (RMR)" states that even for operations handling vapors containing less than 10% VOCs by weight an assessment of new components installed and a gas analysis that indicates the % VOCs content by weight must be provided. "A reasonable estimate of actual VOC emissions can be determined using the average emission factors from policy SSP-2015 (which may overestimate emissions from components subject to a stringent inspection and maintenance program, such as those in the District) and the VOC content as a percentage of the total gas stream (which may underestimate the actual emissions from such components). Taken together, these two assumptions are assumed to provide a reasonable estimate of actual emissions from such components."

For purposes of performing the RMR, VOC emissions are estimated as follows:

VOC emissions = Sum of (qty component type * average EPA emission factor * percent VOC content / 100)

To estimate of fugitive emissions for the HRA, the VOC content from the gas analysis was VOC = 1.2 % by wt which was the average of 4 test results) in **Attachment V**.

B. Emission Factors (EFs)

GHG Emissions

Fugitive (methane) component emissions are calculated using the “revised screening” emissions factors of CARB/CAPCOA “California Implementation Guidelines for Estimating Mass Emissions of Fugitive Hydrocarbon Leaks at Petroleum Facilities” (please see **Attachment IV**).

HRA Emissions

EPA Protocol for Equipment Leak Emissions Estimate Table 2-4. Oil and Gas Production Operations Average Emissions Factors (see **Attachment IV**).

C. Calculations

1. Pre-Project Potential to Emit (PE1)

S-1703-143

Pre-Project Potential to Emit (PE1)		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	0	0
SO _x	0	0
PM ₁₀	0	0
CO	0	0
VOC	0	0

2. Post Project Potential to Emit (PE2)

There is no change in emissions (VOC content of gas is < 10% by weight), therefore PE2 = PE1.

Post Project Potential to Emit (PE2)		
	Daily Emissions (lb/day)	Annual Emissions (lb/year)
NO _x	0	0
SO _x	0	0
PM ₁₀	0	0
CO	0	0
VOC	0	0

HRA VOC Emissions

2344.9 lb/day HC emissions x 0.012 lb VOC/lb HC = 28.1 lb/day, 10,271 lb/yr

Increase in Greenhouse Gas Emissions (Attachment IV)

44.87 lb/day CH₄/day x 23 lb-CO₂e/lb-CH₄ x 365 days/yr
x ton/2000 lb

= 188 tons CO₂e/yr

188 short tons-CO₂e/year x 0.9072 metric tons/short ton = 171 metric tons CO₂e

171 metric tons CO₂e < 230 metric tons CO₂e – zero equivalent

Emissions Profiles are included in **Attachment VI**.

3. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, the Pre-project Stationary Source Potential to Emit (SSPE1) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. Macpherson does not maintain any ERC certificates.

The Pre-Project Stationary Source Potential to Emit (SSPE1) is calculated in **Attachment VII** and summarized below:

SSPE1 (lb/year)					
Permit	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1:	73,155	26,772	47,240	172,955	1,736,079

4. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

There is no increase in emissions i.e. SSPE2 = SSPE1.

SSPE2 (lb/year)					
Permit	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE2:	73,155	26,772	47,240	172,955	1,736,079

5. Major Source Determination

a. Rule 2201 Major Source Determination:

Pursuant to Section 3.23 of District Rule 2201, a major source is a stationary source with post-project emissions or a Post Project Stationary Source Potential to Emit (SSPE2), equal to or exceeding one or more of the following threshold values.

Section 3.23.1 specifies, for determining major source status, fugitives shall only be included for calculating the air pollutant post-project emissions or SSPE2 if the source is included in the list of source categories identified in the major source definition in 40 CFR Part 70.2, or when determining if a stationary source is a major air toxics source as defined in Rule 2520.

Oilfield production and storage prior to custody transfer is not included in the list of source categories identified in the major source definition of 40 CFR Part 70.2. Therefore, the SSPE2 for Major Source Determination purposes will exclude VOC emissions from fugitive sources (i.e. tank vapor collection and control systems (excluding control device(s)) and TEOR casing gas collection and control systems (excluding control device(s))).

Section 3.23.2 specifies, for the purpose of determining major source status, SSPE2 shall not include the quantity of emission reduction credits (ERC) that have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site. This ERC quantity includes all ERC held as certificates and all emission reduction credits that have been sold or transferred.

As seen in Section VII.C.3 & VII.C.4 above MOC does not have any banked ERCs at the source; therefore, the ERCs have not been removed from SSPE2 for determining major source status.

Major Source Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
SSPE1	73,155	26,772	47,240	172,955	1,736,079
SSPE2	73,155	26,772	47,240	172,955	1,736,079
Major Source Threshold	20,000	140,000	140,000	200,000	20,000
Major Source?	Yes	No	No	No	Yes

As seen in the table above, MOCs central heavy oil stationary source is an existing Major Source of NO_x and VOC emissions and is not becoming a Major Source for other criteria pollutants as a result of this project.

b. Rule 2410 Major Source Determination:

The facility or the equipment evaluated under this project is not listed as one of the categories specified in 40 CFR 52.21 (b)(1)(i). Therefore the following PSD Major Source thresholds are applicable.

PSD Major Source Determination (tons/year)							
	NO ₂	SO ₂	PM	PM ₁₀	CO	VOC	CO ₂ e
Estimated Facility PE before Project Increase						868.04	
PSD Major Source Thresholds	2500	250	250	250	250	250	100,000
PSD Major Source ? (Y/N)						Yes	

As shown above, the facility is an existing major source for PSD for at least one pollutant. Therefore the facility is an existing major source for PSD.

6. Baseline Emissions (BE)

The BE calculation (in lbs/year) is performed pollutant-by-pollutant for each unit within the project, to calculate the QNEC and if applicable, to determine the amount of offsets required.

BE = Pre-project Potential to Emit for:

- Any unit located at a non-Major Source,
- Any Highly-Utilized Emissions Unit, located at a Major Source,
- Any Fully-Offset Emissions Unit, located at a Major Source, or
- Any Clean Emissions Unit, located at a Major Source.

otherwise,

BE = Historic Actual Emissions (HAE), calculated pursuant to Section 3.22 of District Rule 2201

As shown in Section VII.C.5 above, the facility is not a Major Source for NO_x, SO_x, CO or PM₁₀. Therefore Baseline Emissions (BE) are equal to the Pre-Project Potential to Emit (PE1) for SO_x, CO and PM₁₀.

The facility is a major source for VOC.

Clean Emissions Unit, Located at a Major Source

Pursuant to Rule 2201, Section 3.12, a Clean Emissions Unit is defined as an emissions unit that is "equipped with an emissions control technology with a minimum control efficiency of at least 95% or is equipped with emission control technology that meets the

requirements for achieved-in-practice BACT as accepted by the APCO during the five years immediately prior to the submission of the complete application.

The TEOR operation S-1703-143 is subject to the following permit condition:

10. {4273} An operator shall not operate a steam-enhanced crude oil production well unless the operator complies with either of the following requirements: The steam-enhanced crude oil production well vent is closed and the front line production equipment downstream of the wells that carry produced fluids (crude oil or mixture of crude oil and water) is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401, the well vent may be temporarily opened during periods of attended service or repair of the well provided such activity is done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere, or the steam-enhanced crude oil production well vent is open and the well vent is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401, 5.5.1 and 5.5.2] Y

If wells are operated with closed casing vents, downstream tanks must be served by 99% vapor control system. Operation with open casing vents must also be served by a 99% vapor control. Therefore S-1703-143 is a clean emissions unit.

7. Rule 2201 SB 288 Major Modification

SB 288 Major Modification is defined in 40 CFR Part 51.165 (as in effect on December 19, 2002) as *"any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."* Significant net emissions increase is defined in reference to a net emissions increase or the potential of a source to emit any of the following pollutants at a major stationary source locating in a severe ozone nonattainment area, a rate of emissions that would equal or exceed any of the following rates: 25 tpy NO_x; 40 tpy SO₂; 15 tpy PM₁₀; 25 tpy VOC; or 40 tpy O₃ (VOC or NO_x).

Since this source is not included in the 28 specific source categories specified in 40 CFR 51.165, the increases in fugitive emissions are not included in the SB 288 Major Modification calculation.

Therefore, this project is not an SB 288 Major Modification.

8. Rule 2201 Federal Major Modification

District Rule 2201, Section 3.17 states that Federal Major Modifications are the same as "Major Modification" as defined in 40 CFR 51.165 and part D of Title I of the CAA.

Major Modification is defined in 40 CFR Part 51.165 as *"any physical change in or change in the method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant subject to regulation under the Act."*

Since this source is not included in the 28 specific source categories specified in 40 CFR 51.165, the increases in fugitive emissions are not included in the Federal Major Modification determination.

As discussed in Section VII.C.5 above, the facility is an existing Major Source for NO_x and VOC; however, the project by itself would need to be a significant increase in order to trigger a Major Modification. The proposed project does not result in an increase in permitted emissions. (see table below).

Major Modification Thresholds (lb/year)				
	NO _x	SO _x	PM ₁₀	VOC
S-1703-143	0	0	0	0
Total Project Increases	0	0	0	0
Threshold	50,000	80,000	30,000	50,000
Major Mod?	No	No	No	No

As shown above, this project does not constitute a Major Modification. Therefore, in accordance with District Rule 2201, Section 3.17, this project does not constitute a Federal Major Modification and no further discussion is required.

9. Rule 2410 Prevention of Significant Deterioration (PSD) Applicability Determination

Rule 2410 applies to pollutants for which the District is in attainment or for unclassified, pollutants. The pollutants addressed in the PSD applicability determination are listed as follows:

- NO₂ (as a primary pollutant)
- SO₂ (as a primary pollutant)
- CO
- PM
- PM₁₀
- Greenhouse gases (GHG): CO₂, N₂O, CH₄, HFCs, PFCs, and SF₆

The first step of this PSD evaluation consists of determining whether the facility is an existing PSD Major Source or not (See Section VII.C.5 of this document).

In the case the facility is an existing PSD Major Source, the second step of the PSD evaluation is to determine if the project results in a PSD significant increase.

In the case the facility is NOT an existing PSD Major Source but is an existing source, the second step of the PSD evaluation is to determine if the project, by itself, would be a PSD major source.

In the case the facility is new source, the second step of the PSD evaluation is to determine if this new facility will become a new PSD major Source as a result of the project and if so, to determine which pollutant will result in a PSD significant increase.

I. Project Location Relative to Class 1 Area

As demonstrated in the “PSD Major Source Determination” Section above, the facility was determined to be a existing major source for PSD. Because the project is not located within 10 km of a Class 1 area – modeling of the emission increase is not required to determine if the project is subject to the requirements of Rule 2410.

II. Significance of Project Emission Increase Determination

a. Potential to Emit of attainment/unclassified pollutant for New or Modified Emission Units vs PSD Significant Emission Increase Thresholds

As a screening tool, the potential to emit from all new and modified units is compared to the PSD significant emission increase thresholds, and if total potential to emit from all new and modified units is below this threshold, no further analysis will be needed.

PSD Significant Emission Increase Determination: Potential to Emit (tons/year)						
	NO2	SO2	PM	PM10	CO	CO2e
Total PE from New and Modified Units	0	0	0	0	0	188
PSD Significant Emission Increase Thresholds	40	40	25	15	100	75,000
PSD Significant Emission Increase?	No	No	No	No	No	No

As demonstrated above, because the project has a total potential to emit from all new and modified emission units below the PSD significant emission increase thresholds, this project is not subject to the requirements of Rule 2410 due to a significant emission increase and no further discussion is required.

9. Quarterly Net Emissions Change (QNEC)

The Quarterly Net Emissions Change is used to complete the emission profile screen for the District's PAS database. The QNEC shall be calculated as follows:

$QNEC = (PE2 - PE1)4$, where:

QNEC = Quarterly Net Emissions Change for each emissions unit, lb/qtr.

PE2 = Post Project Potential to Emit for each emissions unit, lb/yr.

PE1 = Pre Project Potential to Emit for each emissions unit, lb/yr.

Using the values in Sections VII.C.2 and VII.C.6 in the evaluation above, quarterly PE2 and quarterly PE1 can be calculated as follows:

S-1703-143

QNEC			
Pollutant	PE2 (lb/year)	PE1 (lb/year)	QNEC
NO _x	0	0	0
SO _x	0	0	0
PM ₁₀	0	0	0
CO	0	0	0
VOC	0	0	0

VIII. Compliance

Rule 2201 New and Modified Stationary Source Review Rule

A. Best Available Control Technology (BACT)

1. BACT Applicability

BACT requirements are triggered on a pollutant-by-pollutant basis and on an emissions unit-by-emissions unit basis for the following*:

- Any new emissions unit with a potential to emit exceeding two pounds per day,
- The relocation from one Stationary Source to another of an existing emissions unit with a potential to emit exceeding two pounds per day,
- Modifications to an existing emissions unit with a valid Permit to Operate resulting in an AIPE exceeding two pounds per day, and/or
- Any new or modified emissions unit, in a stationary source project, which results in a Major Modification.

*Except for CO emissions from a new or modified emissions unit at a Stationary Source with an SSPE2 of less than 200,000 pounds per year of CO.

a. New emissions units – PE > 2 lb/day

As discussed in Section I above, there are no new emissions units associated with this project; therefore BACT for new units with PE > 2 lb/day purposes is not triggered.

b. Relocation of emissions units – PE > 2 lb/day

As discussed in Section I above, there are no emissions units being relocated from one stationary source to another; therefore BACT is not triggered.

c. Modification of emissions units – AIPE > 2 lb/day

$$\text{AIPE} = \text{PE2} - \text{HAPE}$$

Where,

AIPE = Adjusted Increase in Permitted Emissions, (lb/day)

PE2 = Post-Project Potential to Emit, (lb/day)

HAPE = Historically Adjusted Potential to Emit, (lb/day)

$$HAPE = PE1 \times (EF2/EF1)$$

Where,

PE1 = The emissions unit's Potential to Emit prior to modification or relocation, (lb/day)

EF2 = The emissions unit's permitted emission factor for the pollutant after modification or relocation. If EF2 is greater than EF1 then EF2/EF1 shall be set to 1

EF1 = The emissions unit's permitted emission factor for the pollutant before the modification or relocation

$$AIPE = PE2 - (PE1 * (EF2 / EF1))$$

For this project PE2 = PE1, and EF2 = EF1. Therefore AIPE = 0. Therefore BACT is not triggered.

d. Major Modification

As discussed in Section VII.C.7 above, this project does not constitute a Major Modification; therefore BACT is not triggered.

B. Offsets

1. Offset Applicability

Pursuant to Section 4.5.3, offset requirements shall be triggered on a pollutant by pollutant basis and shall be required if the Post Project Stationary Source Potential to Emit (SSPE2) equals to or exceeds the offset threshold levels in Table 4-1 of Rule 2201.

The following table compares the post-project facility-wide annual emissions in order to determine if offsets will be required for this project.

Offset Determination (lb/year)					
	NO _x	SO _x	PM ₁₀	CO	VOC
Post Project SSPE (SSPE2)	73,155	26,772	47,240	172,955	1,736,079
Offset Threshold	20,000	54,750	29,200	200,000	20,000
Offsets triggered?	Yes	No	Yes	No	Yes

2. Quantity of Offsets Required

As seen above, the SSPE2 is greater than the offset thresholds for NO_x, PM₁₀, and VOC; therefore offset calculations will be required for NO_x, PM₁₀, and VOC for this

project. However PE2 emissions of NO_x, PM₁₀, and VOC are zero. Therefore, offsets are not required.

C. Public Notification

1. Applicability

Public noticing is required for:

- Any new Major Source, which is a new facility that is also a Major Source,
- Major Modifications,
- Any new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any one pollutant,
- Any project which results in the offset thresholds being surpassed, and/or
- Any project with an SSPE of greater than 20,000 lb/year for any pollutant.

a. New Major Source

New Major Sources are new facilities, which are also Major Sources. Since this is not a new facility, public noticing is not required for this project for New Major Source purposes.

b. Major Modification

As demonstrated in VII.C.7, this project does not constitute a Major Modification; therefore, public noticing for Major Modification purposes is not required.

c. PE > 100 lb/day

Applications which include a new emissions unit with a Potential to Emit greater than 100 pounds during any one day for any pollutant will trigger public noticing requirements. There are no new emissions units associated with this project; therefore public noticing is not required for this project for Potential to Emit Purposes.

d. Offset Threshold

The following table compares the SSPE1 with the SSPE2 in order to determine if any offset thresholds have been surpassed with this project.

Offset Threshold				
Pollutant	SSPE1 (lb/year)	SSPE2 (lb/year)	Offset Threshold	Public Notice Required?
NO _x	73,155	73,155	20,000 lb/year	No
SO _x	26,772	26,772	54,750 lb/year	No
PM ₁₀	47,240	47,240	29,200 lb/year	No
CO	172,955	172,955	200,000 lb/year	No
VOC	1,736,079	1,736,079	20,000 lb/year	No

As detailed above, there were no thresholds surpassed with this project; therefore public noticing is not required for offset purposes.

e. SSIPE > 20,000 lb/year

Public notification is required for any permitting action that results in a Stationary Source Increase in Permitted Emissions (SSIPE) of more than 20,000 lb/year of any affected pollutant. According to District policy, the SSIPE is calculated as the Post Project Stationary Source Potential to Emit (SSPE2) minus the Pre-Project Stationary Source Potential to Emit (SSPE1), i.e. $SSIPE = SSPE2 - SSPE1$. The values for SSPE2 and SSPE1 are calculated according to Rule 2201, Sections 4.9 and 4.10, respectively. The SSIPE is compared to the SSIPE Public Notice thresholds in the following table:

Stationary Source Increase in Permitted Emissions [SSIPE] – Public Notice					
Pollutant	SSPE2 (lb/year)	SSPE1 (lb/year)	SSIPE (lb/year)	SSIPE Public Notice Threshold	Public Notice Required?
NO _x	73,155	73,155	0	20,000 lb/year	No
SO _x	26,772	26,772	0	20,000 lb/year	No
PM ₁₀	47,240	47,240	0	20,000 lb/year	No
CO	172,955	172,955	0	20,000 lb/year	No
VOC	1,736,079	1,736,079	0	20,000 lb/year	No

As demonstrated above, the SSIPEs for all pollutants were less than 20,000 lb/year; therefore public noticing for SSIPE purposes is not required.

2. Public Notice Action

As discussed above, this project will not result in emissions, for any pollutant, which would subject the project to any of the noticing requirements listed above. Therefore, public notice will not be required for this project.

D. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions, to a level at or below the emissions associated with the maximum design capacity. Per Sections 3.15.1 and 3.15.2, the DEL must be contained in the latest ATC and contained in or enforced by the latest PTO and enforceable, in a practicable manner, on a daily basis. DELs are also required to enforce the applicability of BACT.

Proposed Rule 2201 (DEL) Conditions:

The VOC content of the gas shall not exceed 10% by weight. [District Rule 2201] Y

E. Compliance Assurance

1. Source Testing

Source testing requirements, in accordance with District Rule 4401 will be discussed in Section VIII, *District Rule 4401*, of this evaluation.

2. Monitoring

The following monitoring condition is included on the ATC:

Operator shall conduct quarterly gas sampling for gas exiting the separator pressure vessel to qualify for exemption from fugitive component counts for components handling fluids with VOC content equal to or less than 10% by weight. If gas samples are equal to or less than 10% VOC by weight for 8 consecutive quarterly samplings, sampling frequency shall only be required annually. [District Rule 2201] Y

Monitoring requirements, in accordance with District Rule 4401 will be discussed in Section VIII, *District Rule 4401*, of this evaluation.

3. Recordkeeping

Recordkeeping requirements, in accordance with District Rule 4401 will be discussed in Section VIII, *District Rule 4401*, of this evaluation.

The following permit condition will be listed on permit as follows:

All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070] Y

4. Reporting

No reporting is required to demonstrate compliance with Rule 2201.

Rule 2520 Federally Mandated Operating Permits

Since this facility's emissions exceed the major source thresholds of District Rule 2201, this facility is a major source. Pursuant to Rule 2520 Section 5.1, and as required by permit condition, the facility will have up to 12 months from the date of ATC issuance to either submit a Title V Application or comply with District Rule 2530 *Federally Enforceable Potential to Emit*. This facility is subject to this Rule, and has received their Title V Operating Permit. The proposed modification is a Minor Modification to the Title V Permit pursuant to Section 3.20 of this rule:

In accordance with Rule 2520, 3.20, these modifications:

1. Do not violate requirements of any applicable federally enforceable local or federal requirement;
2. Do not relax monitoring, reporting, or recordkeeping requirements in the permit and are not significant changes in existing monitoring permit terms or conditions;

3. Do not require or change a case-by-case determination of an emission limitation or other standard, or a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis;
4. Do not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:
 - a. A federally enforceable emission cap assumed to avoid classification as a modification under any provisions of Title I of the Federal Clean Air Act; and
 - b. An alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Federal Clean Air Act; and
5. Are not Title I modifications as defined in District Rule 2520 or modifications as defined in section 111 or 112 of the Federal Clean Air Act; and
6. Do not seek to consolidate overlapping applicable requirements.

As discussed above, the facility has applied for a Certificate of Conformity (COC); therefore, the facility must apply to modify their Title V permit with an administrative amendment, prior to operating with the proposed modifications. Continued compliance with this rule is expected. The facility may construct/operate under the ATC upon submittal of the Title V administrative amendment/minor modification application. The Title V Compliance Certification form is included in **Attachment VIII**.

Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected.

California Health & Safety Code 41700 (Health Risk Assessment)

District Policy APR 1905 – Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite.

As demonstrated above, there are no increases in VOC emissions associated with this project, however the project results in an increase toxic emissions and therefore a health risk assessment was necessary. The results of the HRA (**Attachment IX**) indicated that the acute and chronic indices were below 1.0 and the cancer risk for the project was 3.01E-08, which is less than 1 per million. The project is approved without TBACT.

Rule 4401 Steam-enhanced Crude Oil Production Well Vents

The purpose of this rule is to limit the VOC emissions from steam-enhanced crude oil production well vents. This rule is applicable to all steam-enhanced crude oil production wells and any associated vapor collection and control systems. The current PTO and ATC base document include all updated requirements of the rule. Continued compliance is expected.

California Health & Safety Code 42301.6 (School Notice)

The District has verified that this site is not located within 1,000 feet of a school. Therefore, pursuant to California Health and Safety Code 42301.6, a school notice is not required.

California Environmental Quality Act (CEQA)

CEQA requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The District adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities;
- Identify the ways that environmental damage can be avoided or significantly reduced;
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible; and
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

The District performed an Engineering Evaluation (this document) for the proposed project and determined that all project specific emission unit(s) are exempt from Best Available Control Technology (BACT) requirements. Furthermore, the District has determined that potential emission increases would have a less than significant health impact on sensitive receptors.

Issuance of permits for emissions units not subject to BACT requirements and with health impact less than significant is a matter of ensuring conformity with applicable District rules and regulations and does not require discretionary judgment or deliberation. Thus, the District concludes that this permitting action constitutes a ministerial approval. Section 21080 of the Public Resources Code exempts from the application of CEQA those projects over which a public agency exercises only ministerial approval. Therefore, the District finds that this project is exempt from the provisions of CEQA.

IX. Recommendation

Compliance with all applicable rules and regulations is expected. Issue Authorities to Construct S-1703-143-20 subject to the permit conditions on the attached draft Authority to Construct in **Attachment X**.

X. Billing Information

Annual Permit Fees			
Permit Number	Fee Schedule	Fee Description	Annual Fee
S-1703-143-20	3020-09-A	600 wells	\$5604.00

Attachments

- I: ATC S-1703-143-19, and current PTO S-1703-143-17
- II: Location Map
- III: New Compressor Station/Manufacturer's Information
- IV: Increase in Methane Fugitive Emissions
- V: Gas Analysis
- VI: Emissions Profile
- VII: SSPE Calculations
- VIII: Title V Compliance Certification Form
- IX: HRA
- X: Draft ATC

Attachment I
Draft ATC S-1703-143-19 and current PTO S-1703-143-17

San Joaquin Valley Air Pollution Control District

PERMIT UNIT: S-1703-143-17

EXPIRATION DATE: 07/31/2016

SECTION: NE20 **TOWNSHIP:** 28S **RANGE:** 29E

EQUIPMENT DESCRIPTION:

THERMALLY ENHANCED OIL RECOVERY (TEOR) OPERATION SERVING UP TO 250 WELLS INCLUDING HEAT EXCHANGERS, SEPARATORS, KNOCKOUTS AND COMPRESSOR STATIONS WITH OPEN OR CLOSED CASING VENTS CONNECTED TO WELL VENT VAPOR CONTROL SYSTEM AND TANK VAPOR CONTROL SYSTEMS S-1703-139, -144, AND -184 SERVED BY H₂S SCRUBBER SYSTEM WITH COMPRESSED VAPOR PIPING TO STEAM GENERATORS S-1703-157, '-158, '-159, '-160, '-161, AND '-162 FOR INCINERATION OF NONCONDENSIBLE VAPORS OR TO GAS DISPOSAL WELL

PERMIT UNIT REQUIREMENTS

1. TEOR wells are authorized at Sections 7, 17, 18, 19 and 20 T28S/R29E and at Sections 12 and 13 T28S/R28E. [District Rule 2201] Federally Enforceable Through Title V Permit
2. The operation shall be equipped with heat exchangers, free water knockouts, gas liquid separators, vapor compressors with electric motors, and compressed vapor piping to any of the following steam generators S-1703-157, -158, -159, -160, -161, or '-162. [District NSR Rule] Federally Enforceable Through Title V Permit
3. Noncondensibles shall be incinerated in steam generators S-1703-157, -158, -159, -160, -161, or '-162 or injected into DOGGR-approved disposal well. [District NSR Rule] Federally Enforceable Through Title V Permit
4. During the time any steam-enhanced crude oil production well is undergoing service or repair while the well is not producing, it shall be exempt from the emission control requirements of District Rule 4401, 5.0 (as amended January 15, 1998). [District Rule 4401, 4.1] Federally Enforceable Through Title V Permit
5. The crude oil production from wells associated with this permit unit shall not lie within 1000 feet of an air injection well used for in-situ combustion. [District Rule 4407, 2.0, 3.4, and 3.5] Federally Enforceable Through Title V Permit
6. All required source testing shall conform to the compliance testing procedures described in District Rule 1081(as amended December 16, 1993). [District Rule 1081] Federally Enforceable Through Title V Permit
7. The VOC content of the gas shall not exceed 10% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
8. Operator shall conduct quarterly gas sampling for gas exiting the separator pressure vessel to qualify for exemption from fugitive component counts for components handling fluids with VOC content equal to or less than 10% by weight. If gas samples are equal to or less than 10% VOC by weight for 8 consecutive quarterly samplings, sampling frequency shall only be required annually. [District Rule 2201] Federally Enforceable Through Title V Permit
9. VOC content of gas shall be determined by ASTM D1945, ASTM D1946, EPA Method 18 referenced as methane, or equivalent test method with prior District approval. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Gas and liquid leaks are as defined in Section 3.20 of Rule 4401. [District Rule 4401 3.20] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

11. An operator shall not operate a steam-enhanced crude oil production well unless the operator complies with either of the following requirements: The steam-enhanced crude oil production well vent is closed and the front line production equipment downstream of the wells that carry produced fluids (crude oil or mixture of crude oil and water) is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401, the well vent may be temporarily opened during periods of attended service or repair of the well provided such activity is done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere, or the steam-enhanced crude oil production well vent is open and the well vent is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401, 5.5.1 and 5.5.2] Federally Enforceable Through Title V Permit
12. An operator shall be in violation of this rule if any District inspection demonstrates or if any operator inspection conducted pursuant to Section 5.8 of Rule 4401 demonstrates the existence of an open-ended line or a valve located at the end of the line that is not sealed with a blind flange, plug, cap, or a second closed valve that is not closed at all times, except during attended operations as defined by Section 5.6.2.1 of Rule 4401 requiring process fluid flow through the open-ended lines, a component with a major liquid leak, or a component with a gas leak greater than 50,000 ppmv. [District Rule 4401 5.6.2] Federally Enforceable Through Title V Permit
13. An operator shall be in violation of this rule if any District inspection demonstrates or if any operator inspection conducted pursuant to Section 5.8 of Rule 4401 demonstrates the existence of any combination of components with minor liquid leaks, minor gas leaks, or a gas leaks greater than 10,000 ppmv up to 50,000 ppmv that totals more than number of leaks allowed by Table 3 of Rule 4401. [District Rule 4401 5.6.2] Federally Enforceable Through Title V Permit
14. An operator shall not use any component with a leak as defined in Section 3.0 of Rule 4401, or that is found to be in violation of the provisions of Section 5.6.2 of Rule 4401. However, components that were found leaking may be used provided such leaking components have been identified with a tag for repair, are repaired, or awaiting re-inspection after being repaired within the applicable time frame specified in Section 5.9 of Rule 4401. [District Rule 4401 5.7.1] Federally Enforceable Through Title V Permit
15. Each hatch shall be closed at all times except during sampling or adding of process material through the hatch, or during attended repair, replacement, or maintenance operations, provided such activities are done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere. [District Rule 4401 5.7.2] Federally Enforceable Through Title V Permit
16. An operator shall comply with the requirements of Section 6.7 of Rule 4401 if there is any change in the description of major components or critical components. [District Rule 4401 5.7.3] Federally Enforceable Through Title V Permit
17. The annual inspection requirements of Section 5.8.1 through Section 5.8.5 of Rule 4401 shall not apply to components exclusively handling gas/vapor or liquid with a VOC content of ten percent by weight (10 wt %) or less, as determined by the test methods in Section 6.3.5 of Rule 4401. [District Rule 4401 4.9] Federally Enforceable Through Title V Permit
18. Except for pipes and unsafe-to-monitor components, an operator shall inspect all other components pursuant to the requirements of Section 6.3.3 of Rule 4401 at least once every year. [District Rule 4401 5.8.1] Federally Enforceable Through Title V Permit
19. An operator shall visually inspect all pipes at least once every year. Any visual inspection of pipes that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected within 24 hours after detecting the leak. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of Rule 4401. [District Rule 4401 5.8.2] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

20. In addition to the inspections required by Section 5.8.1 of Rule 4401, an operator shall inspect for leaks all accessible operating pumps, compressors, and PRDs in service as follows: An operator shall audio-visually (by hearing and by sight) inspect for leaks all accessible operating pumps, compressors, and PRDs in service at least once each calendar week. Any audio-visual inspection of an accessible operating pump, compressor, and PRD performed by an operator that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected not later than 24 hours after conducting the audio-visual inspection. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of Rule 4401. [District Rule 4401 5.8.3] Federally Enforceable Through Title V Permit
21. In addition to the inspections required by Sections 5.8.1, 5.8.2 and 5.8.3 of Rule 4401, operator shall perform the following: initially inspect a PRD that releases to the atmosphere as soon as practicable but not later than 24 hours after the discovery of the release, re-inspect the PRD not earlier than 24 hours after the initial inspection but not later than 15 calendar days after the initial inspection, inspect all new, replaced, or repaired fittings, flanges, and threaded connections within 72 hours of placing the component in service. Except for PRDs subject to the requirements of Section 5.8.4.1 of Rule 4401, an operator shall inspect a component that has been repaired or replaced not later than 15 calendar days after the component was repaired or replaced. [District Rule 4401 5.8.4] Federally Enforceable Through Title V Permit
22. An operator shall inspect all unsafe-to-monitor components during each turnaround. [District Rule 4401 5.8.5] Federally Enforceable Through Title V Permit
23. District inspection in no way fulfills any of the mandatory inspection requirements that are placed upon operators and cannot be used or counted as an inspection required of an operator. [District Rule 4401 5.8.6] Federally Enforceable Through Title V Permit
24. An operator shall affix a readily visible weatherproof tag to a leaking component upon detection of the leak and shall include the following information on the tag: date and time of leak detection, date and time of leak measurement, for a gaseous leak, the leak concentration in ppmv, for a liquid leak, whether it is a major liquid leak or a minor liquid leak, whether the component is an essential component, an unsafe-to monitor component, or a critical component. [District Rule 4401 5.9.1] Federally Enforceable Through Title V Permit
25. An operator shall keep the tag affixed to the component until an operator has met all of the following conditions: repaired or replaced the leaking component, re-inspected the component using the test method in Section 6.3.3, and 5.9.2.3 of Rule 4401, or the component is found to be in compliance with the requirements of this rule. [District Rule 4401 5.9.2] Federally Enforceable Through Title V Permit
26. An operator shall minimize a component leak in order to stop or reduce leakage to the atmosphere immediately to the extent possible, but not later than one (1) hour after detection of the leak. [District Rule 4401 5.9.3] Federally Enforceable Through Title V Permit
27. Except for leaking critical components or leaking essential components subject to the requirements of Section 5.9.7 of Rule 4401, if an operator has minimized a leak but the leak still exceeds the applicable leak limits as defined in Section 3.0 of Rule 4401, an operator shall comply with at least one of the following requirements as soon as practicable but not later than the time period specified in Table 4 of Rule 4401: Repair or replace the leaking component; or vent the leaking component to a VOC collection and control system as defined in Section 3.0 of Rule 4401, or remove the leaking component from operation. [District Rule 4401 5.9.4] Federally Enforceable Through Title V Permit
28. The repair period in calendar days shall not exceed 14 days for minor gas leaks, 5 days for major gas leaks less than or equal to 50,000 ppmv, 2 days for gas leak greater than 50,000 ppmv, 3 days for minor liquid leaks, 2 days for major liquid leaks. [District Rule 4401 5.9.4] Federally Enforceable Through Title V Permit
29. The leak rate measured after leak minimization has been performed shall be the leak rate used to determine the applicable repair period specified in Table 4 of Rule 4401. [District Rule 4401 5.9.5] Federally Enforceable Through Title V Permit
30. The time of the initial leak detection shall be the start of the repair period specified in Table 4 of Rule 4401. [District Rule 4401 5.9.6] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

31. If the leaking component is an essential component or a critical component that cannot be immediately shut down for repairs, and if the leak has been minimized but the leak still exceeds the applicable leak standard of this rule, the operator shall repair or replace the essential component or critical component to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection, whichever comes earlier. [District Rule 4401 5.9.7] Federally Enforceable Through Title V Permit
32. The operator of any steam-enhanced crude oil production well shall maintain records of the date and well identification where steam injection or well stimulation occurs. [District Rule 4401 6.1.1] Federally Enforceable Through Title V Permit
33. An operator of any steam-enhanced crude oil production well shall keep source test records which demonstrate compliance with the control efficiency requirements of the VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401 6.1.3] Federally Enforceable Through Title V Permit
34. The results of source tests conducted pursuant to Section 4.6.2 of Rule 4401 shall be submitted to the APCO within 60 days after the completion of the source test. [District Rule 4401 6.1.4] Federally Enforceable Through Title V Permit
35. Operator of any steam-enhanced crude oil production well shall keep an inspection log maintained pursuant to Section 6.4 of Rule 4401. [District Rule 4401 6.1.5] Federally Enforceable Through Title V Permit
36. Records of each calibration of the portable hydrocarbon detection instrument utilized for inspecting components, including a copy of current calibration gas certification from the vendor of said calibration gas cylinder, the date of calibration, concentration of calibration gas, instrument reading of calibration gas before adjustment, instrument reading of calibration gas after adjustment, calibration gas expiration date, and calibration gas cylinder pressure at the time of calibration shall be maintained. [District Rule 4401 6.1.6] Federally Enforceable Through Title V Permit
37. An operator shall maintain copies at the facility of the training records of the training program operated pursuant to Section 6.5 of Rule 4401. [District Rule 4401 6.1.7] Federally Enforceable Through Title V Permit
38. Operator shall keep a copy of the APCO-approved Operator Management Plan at the facility. [District Rule 4401 6.1.8] Federally Enforceable Through Title V Permit
39. Operator shall submit to the APCO not later than June 14, 2007 a list of all gauge tanks, as defined in Section 3.17. The list shall contain the size, identification number, the location of each gauge tank and specify whether the gauge tank is upstream of all front line production equipment. [District Rule 4401 6.1.9] Federally Enforceable Through Title V Permit
40. The results of gauge tank TVP testing conducted pursuant to Section 6.2.5 shall be submitted to the APCO within 60 days after the completion of the testing. [District Rule 4401 6.1.10] Federally Enforceable Through Title V Permit
41. An operator that discovers that a PRD has released shall record the date that the release was discovered, and the identity and location of the PRD that released. An operator shall submit such information recorded during the calendar year to the APCO no later than 60 days after the end of the calendar year. [District Rule 4401 6.1.11] Federally Enforceable Through Title V Permit
42. An operator shall source test annually all vapor collection and control systems used to control emissions from steam-enhanced crude oil production well vents to determine the control efficiency of the device(s) used for destruction or removal of VOC. Compliance testing shall be performed annually by source testers certified by ARB. Testing shall be performed during June, July, August, or September of each year if the system's control efficiency is dependent upon ambient air temperature. [District Rule 4401 6.2.1] Federally Enforceable Through Title V Permit
43. If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 if all uncondensed VOC emissions collected by a vapor collection and control system are incinerated in fuel burning equipment, an internal combustion engine or in a smokeless flare. [District Rule 4401 6.2.2] Federally Enforceable Through Title V Permit
44. If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 for a vapor control system which does not have a VOC destruction device. [District Rule 4401 6.2.3] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

45. An operator seeking approval pursuant to Section 6.2.2 or Section 6.2.3 shall submit a written request and supporting information to the APCO. The District shall evaluate the request and if approved by the APCO, the District shall provide EPA and ARB with a copy of the evaluation and shall request EPA and ARB approval. The District evaluation and the APCO request shall be deemed approved unless EPA or ARB objects to such approval in writing within 45 days of the receipt of the APCO request. [District Rule 4401 6.2.4] Federally Enforceable Through Title V Permit
46. An operator shall comply with the following requirements for each gauge tank, as defined in Section 3.17 of Rule 4401: Conduct an initial TVP testing of the produced fluid in each gauge tank not later than June 14, 2007. Thereafter, an operator shall conduct periodic TVP testing of each gauge tank at least once every 24 months during summer (July - September), and whenever there is a change in the source or type of produced fluid in the gauge tank. The TVP testing shall be conducted at the actual storage temperature of the produced fluid in the gauge tank using the applicable TVP test method specified in Section 6.4 of Rule 4623 (Storage of Organic Liquids). The operator shall submit the TVP testing results to the APCO as specified in Section 6.1.10 of Rule 4401. [District Rule 4401 6.2.5] Federally Enforceable Through Title V Permit
47. The control efficiency of any VOC control device, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case EPA Method 25a may be used. EPA Method 18 may be used in lieu of EPA Method 25 or EPA Method 25a provided the identity and approximate concentrations of the analytes/compounds in the sample gas stream are known before analysis with the gas chromatograph and the gas chromatograph is calibrated for each of those known analyte/compound to ensure that the VOC concentrations are neither under- or over-reported. [District Rule 4401 6.3.1] Federally Enforceable Through Title V Permit
48. VOC content shall be analyzed by using the latest revision of ASTM Method E168, E169, or E260 as applicable. Analysis of halogenated exempt compounds shall be performed by using ARB Method 432. [District Rule 4401 6.3.2] Federally Enforceable Through Title V Permit
49. Leak inspection, other than audio-visual, and measurements of gaseous leak concentrations shall be conducted according to EPA Method 21 using an appropriate portable hydrocarbon detection instrument calibrated with methane. The instrument shall be calibrated in accordance with the procedures specified in EPA Method 21 or the manufacturer's instruction, as appropriate, not more than 30 days prior to its use. The operator shall record the calibration date of the instrument. Where safety is a concern, such as measuring leaks from compressor seals or pump seals when the shaft is rotating, a person shall measure leaks by placing the instrument probe inlet at a distance of one (1) centimeter or less from the surface of the component interface. [District Rule 4401 6.3.3] Federally Enforceable Through Title V Permit
50. The VOC content by weight percent (wt.%) shall be determined using American Society of Testing and Materials (ASTM) D1945 for gases and South Coast Air Quality Management District (SCAQMD) Method 304-91 or the latest revision of ASTM Method E168, E169 or E260 for liquids. [District Rule 4401 6.3.5] Federally Enforceable Through Title V Permit
51. Operator shall maintain an inspection log in which an operator records, at a minimum, all of the following information for each inspection performed: The total number of components inspected, total number and percentage of leaking components found by component type, location, type, and name or description of each leaking component and description of any unit where the leaking component is found, date of leak detection and the method of leak detection. For gaseous leaks, the leak concentration in ppmv, and for liquid leaks record whether the leak is a major liquid leak or a minor liquid leak. the date of repair, replacement, or removal from operation of leaking components, identify and location of essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, methods used to minimize the leak from essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, the date of re-inspection and the leak concentration in ppmv after the component is repaired or is replaced, the inspector's name, business mailing address, and business telephone number, date and signature of the facility operator responsible for the inspection and repair program certifying the accuracy of the information recorded in the log. [District Rule 4401 6.4] Federally Enforceable Through Title V Permit

PERMIT UNIT REQUIREMENTS CONTINUE ON NEXT PAGE

These terms and conditions are part of the Facility-wide Permit to Operate.

52. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070] Federally Enforceable Through Title V Permit

These terms and conditions are part of the Facility-wide Permit to Operate.

AUTHORITY TO CONSTRUCT

PERMIT NO: S-1703-143-19

ISSUANCE DATE: 09/10/2012

LEGAL OWNER OR OPERATOR: MACPHERSON OIL COMPANY

MAILING ADDRESS: PO BOX 5368
BAKERSFIELD, CA 93388

LOCATION: HEAVY OIL CENTRAL STATIONARY SOURCE
CA

SECTION: NE20 **TOWNSHIP:** 28S **RANGE:** 29E

EQUIPMENT DESCRIPTION:

MODIFICATION OF THERMALLY ENHANCED OIL RECOVERY (TEOR) OPERATION SERVING UP TO 250 WELLS INCLUDING HEAT EXCHANGERS, SEPARATORS, KNOCKOUTS AND COMPRESSOR STATIONS WITH OPEN OR CLOSED CASING VENTS CONNECTED TO WELL VENT VAPOR CONTROL SYSTEM AND TANK VAPOR CONTROL SYSTEMS S-1703-139, -144, AND -184 SERVED BY H₂S SCRUBBER SYSTEM WITH COMPRESSED VAPOR PIPING TO STEAM GENERATORS S-1703-157, '-158, '-159, '-160, '-161, AND '-162 FOR INCINERATION OF NONCONDENSIBLE VAPORS OR TO GAS DISPOSAL WELL: CONNECT TANK S-1703-211 TO VAPOR CONTROL SYSTEM

CONDITIONS

1. This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. TEOR wells are authorized at Sections 7, 17, 18, 19 and 20 T28S/R29E and at Sections 12 and 13 T28S/R28E. [District Rule 2201] Federally Enforceable Through Title V Permit
4. The operation shall be equipped with heat exchangers, free water knockouts, gas liquid separators, vapor compressors with electric motors, and compressed vapor piping to any of the following steam generators S-1703-157, -158, -159, -160, -161, or '-162. [District NSR Rule] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director / APCO

DAVID WARNER, Director of Permit Services

S-1703-143-19 Mar 29 2014 11:36AM -- EDGEHILL : Joint Inspection NOT Required

Southern Regional Office • 34946 Flyover Court • Bakersfield, CA 93308 • (661) 392-5500 • Fax (661) 392-5585

5. Noncondensibles shall be incinerated in steam generators S-1703-157, -158, -159, -160, -161, or -162 or injected into DOGGR-approved disposal well. [District NSR Rule] Federally Enforceable Through Title V Permit
6. During the time any steam-enhanced crude oil production well is undergoing service or repair while the well is not producing, it shall be exempt from the emission control requirements of District Rule 4401, 5.0 (as amended January 15, 1998). [District Rule 4401, 4.1] Federally Enforceable Through Title V Permit
7. The crude oil production from wells associated with this permit unit shall not lie within 1000 feet of an air injection well used for in-situ combustion. [District Rule 4407, 2.0, 3.4, and 3.5] Federally Enforceable Through Title V Permit
8. All required source testing shall conform to the compliance testing procedures described in District Rule 1081 (as amended December 16, 1993). [District Rule 1081] Federally Enforceable Through Title V Permit
9. The VOC content of the gas shall not exceed 10% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
10. Operator shall conduct quarterly gas sampling for gas exiting the separator pressure vessel to qualify for exemption from fugitive component counts for components handling fluids with VOC content equal to or less than 10% by weight. If gas samples are equal to or less than 10% VOC by weight for 8 consecutive quarterly samplings, sampling frequency shall only be required annually. [District Rule 2201] Federally Enforceable Through Title V Permit
11. VOC content of gas shall be determined by ASTM D1945, ASTM D1946, EPA Method 18 referenced as methane, or equivalent test method with prior District approval. [District Rule 2201] Federally Enforceable Through Title V Permit
12. Gas and liquid leaks are as defined in Section 3.20 of Rule 4401. [District Rule 4401 3.20] Federally Enforceable Through Title V Permit
13. An operator shall not operate a steam-enhanced crude oil production well unless the operator complies with either of the following requirements: The steam-enhanced crude oil production well vent is closed and the front line production equipment downstream of the wells that carry produced fluids (crude oil or mixture of crude oil and water) is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401, the well vent may be temporarily opened during periods of attended service or repair of the well provided such activity is done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere, or the steam-enhanced crude oil production well vent is open and the well vent is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401, 5.5.1 and 5.5.2] Federally Enforceable Through Title V Permit
14. An operator shall be in violation of this rule if any District inspection demonstrates or if any operator inspection conducted pursuant to Section 5.8 of Rule 4401 demonstrates the existence of an open-ended line or a valve located at the end of the line that is not sealed with a blind flange, plug, cap, or a second closed valve that is not closed at all times, except during attended operations as defined by Section 5.6.2.1 of Rule 4401 requiring process fluid flow through the open-ended lines, a component with a major liquid leak, or a component with a gas leak greater than 50,000 ppmv. [District Rule 4401 5.6.2] Federally Enforceable Through Title V Permit
15. An operator shall be in violation of this rule if any District inspection demonstrates or if any operator inspection conducted pursuant to Section 5.8 of Rule 4401 demonstrates the existence of any combination of components with minor liquid leaks, minor gas leaks, or a gas leaks greater than 10,000 ppmv up to 50,000 ppmv that totals more than number of leaks allowed by Table 3 of Rule 4401. [District Rule 4401 5.6.2] Federally Enforceable Through Title V Permit
16. An operator shall not use any component with a leak as defined in Section 3.0 of Rule 4401, or that is found to be in violation of the provisions of Section 5.6.2 of Rule 4401. However, components that were found leaking may be used provided such leaking components have been identified with a tag for repair, are repaired, or awaiting re-inspection after being repaired within the applicable time frame specified in Section 5.9 of Rule 4401. [District Rule 4401 5.7.1] Federally Enforceable Through Title V Permit
17. Each hatch shall be closed at all times except during sampling or adding of process material through the hatch, or during attended repair, replacement, or maintenance operations, provided such activities are done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere. [District Rule 4401 5.7.2] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

18. An operator shall comply with the requirements of Section 6.7 of Rule 4401 if there is any change in the description of major components or critical components. [District Rule 4401 5.7.3] Federally Enforceable Through Title V Permit
19. The annual inspection requirements of Section 5.8.1 through Section 5.8.5 of Rule 4401 shall not apply to components exclusively handling gas/vapor or liquid with a VOC content of ten percent by weight (10 wt %) or less, as determined by the test methods in Section 6.3.5 of Rule 4401. [District Rule 4401 4.9] Federally Enforceable Through Title V Permit
20. Except for pipes and unsafe-to-monitor components, an operator shall inspect all other components pursuant to the requirements of Section 6.3.3 of Rule 4401 at least once every year. [District Rule 4401 5.8.1] Federally Enforceable Through Title V Permit
21. An operator shall visually inspect all pipes at least once every year. Any visual inspection of pipes that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected within 24 hours after detecting the leak. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of Rule 4401. [District Rule 4401 5.8.2] Federally Enforceable Through Title V Permit
22. In addition to the inspections required by Section 5.8.1 of Rule 4401, an operator shall inspect for leaks all accessible operating pumps, compressors, and PRDs in service as follows: An operator shall audio-visually (by hearing and by sight) inspect for leaks all accessible operating pumps, compressors, and PRDs in service at least once each calendar week. Any audio-visual inspection of an accessible operating pump, compressor, and PRD performed by an operator that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected not later than 24 hours after conducting the audio-visual inspection. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of Rule 4401. [District Rule 4401 5.8.3] Federally Enforceable Through Title V Permit
23. In addition to the inspections required by Sections 5.8.1, 5.8.2 and 5.8.3 of Rule 4401, operator shall perform the following: initially inspect a PRD that releases to the atmosphere as soon as practicable but not later than 24 hours after the discovery of the release, re-inspect the PRD not earlier than 24 hours after the initial inspection but not later than 15 calendar days after the initial inspection, inspect all new, replaced, or repaired fittings, flanges, and threaded connections within 72 hours of placing the component in service. Except for PRDs subject to the requirements of Section 5.8.4.1 of Rule 4401, an operator shall inspect a component that has been repaired or replaced not later than 15 calendar days after the component was repaired or replaced. [District Rule 4401 5.8.4] Federally Enforceable Through Title V Permit
24. An operator shall inspect all unsafe-to-monitor components during each turnaround. [District Rule 4401 5.8.5] Federally Enforceable Through Title V Permit
25. District inspection in no way fulfills any of the mandatory inspection requirements that are placed upon operators and cannot be used or counted as an inspection required of an operator. [District Rule 4401 5.8.6] Federally Enforceable Through Title V Permit
26. An operator shall affix a readily visible weatherproof tag to a leaking component upon detection of the leak and shall include the following information on the tag: date and time of leak detection, date and time of leak measurement, for a gaseous leak, the leak concentration in ppmv, for a liquid leak, whether it is a major liquid leak or a minor liquid leak, whether the component is an essential component, an unsafe-to monitor component, or a critical component. [District Rule 4401 5.9.1] Federally Enforceable Through Title V Permit
27. An operator shall keep the tag affixed to the component until an operator has met all of the following conditions: repaired or replaced the leaking component, re-inspected the component using the test method in Section 6.3.3, and 5.9.2.3 of Rule 4401, or the component is found to be in compliance with the requirements of this rule. [District Rule 4401 5.9.2] Federally Enforceable Through Title V Permit
28. An operator shall minimize a component leak in order to stop or reduce leakage to the atmosphere immediately to the extent possible, but not later than one (1) hour after detection of the leak. [District Rule 4401 5.9.3] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

29. Except for leaking critical components or leaking essential components subject to the requirements of Section 5.9.7 of Rule 4401, if an operator has minimized a leak but the leak still exceeds the applicable leak limits as defined in Section 3.0 of Rule 4401, an operator shall comply with at least one of the following requirements as soon as practicable but not later than the time period specified in Table 4 of Rule 4401: Repair or replace the leaking component; or vent the leaking component to a VOC collection and control system as defined in Section 3.0 of Rule 4401, or remove the leaking component from operation. [District Rule 4401 5.9.4] Federally Enforceable Through Title V Permit
30. The repair period in calendar days shall not exceed 14 days for minor gas leaks, 5 days for major gas leaks less than or equal to 50,000 ppmv, 2 days for gas leak greater than 50,000 ppmv, 3 days for minor liquid leaks, 2 days for major liquid leaks. [District Rule 4401 5.9.4] Federally Enforceable Through Title V Permit
31. The leak rate measured after leak minimization has been performed shall be the leak rate used to determine the applicable repair period specified in Table 4 of Rule 4401. [District Rule 4401 5.9.5] Federally Enforceable Through Title V Permit
32. The time of the initial leak detection shall be the start of the repair period specified in Table 4 of Rule 4401. [District Rule 4401 5.9.6] Federally Enforceable Through Title V Permit
33. If the leaking component is an essential component or a critical component that cannot be immediately shut down for repairs, and if the leak has been minimized but the leak still exceeds the applicable leak standard of this rule, the operator shall repair or replace the essential component or critical component to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection, whichever comes earlier. [District Rule 4401 5.9.7] Federally Enforceable Through Title V Permit
34. The operator of any steam-enhanced crude oil production well shall maintain records of the date and well identification where steam injection or well stimulation occurs. [District Rule 4401 6.1.1] Federally Enforceable Through Title V Permit
35. An operator of any steam-enhanced crude oil production well shall keep source test records which demonstrate compliance with the control efficiency requirements of the VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401 6.1.3] Federally Enforceable Through Title V Permit
36. The results of source tests conducted pursuant to Section 4.6.2 of Rule 4401 shall be submitted to the APCO within 60 days after the completion of the source test. [District Rule 4401 6.1.4] Federally Enforceable Through Title V Permit
37. Operator of any steam-enhanced crude oil production well shall keep an inspection log maintained pursuant to Section 6.4 of Rule 4401. [District Rule 4401 6.1.5] Federally Enforceable Through Title V Permit
38. Records of each calibration of the portable hydrocarbon detection instrument utilized for inspecting components, including a copy of current calibration gas certification from the vendor of said calibration gas cylinder, the date of calibration, concentration of calibration gas, instrument reading of calibration gas before adjustment, instrument reading of calibration gas after adjustment, calibration gas expiration date, and calibration gas cylinder pressure at the time of calibration shall be maintained. [District Rule 4401 6.1.6] Federally Enforceable Through Title V Permit
39. An operator shall maintain copies at the facility of the training records of the training program operated pursuant to Section 6.5 of Rule 4401. [District Rule 4401 6.1.7] Federally Enforceable Through Title V Permit
40. Operator shall keep a copy of the APCO-approved Operator Management Plan at the facility. [District Rule 4401 6.1.8] Federally Enforceable Through Title V Permit
41. Operator shall submit to the APCO not later than June 14, 2007 a list of all gauge tanks, as defined in Section 3.17. The list shall contain the size, identification number, the location of each gauge tank and specify whether the gauge tank is upstream of all front line production equipment. [District Rule 4401 6.1.9] Federally Enforceable Through Title V Permit
42. The results of gauge tank TVP testing conducted pursuant to Section 6.2.5 shall be submitted to the APCO within 60 days after the completion of the testing. [District Rule 4401 6.1.10] Federally Enforceable Through Title V Permit
43. An operator that discovers that a PRD has released shall record the date that the release was discovered, and the identity and location of the PRD that released. An operator shall submit such information recorded during the calendar year to the APCO no later than 60 days after the end of the calendar year. [District Rule 4401 6.1.11] Federally Enforceable Through Title V Permit

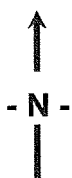
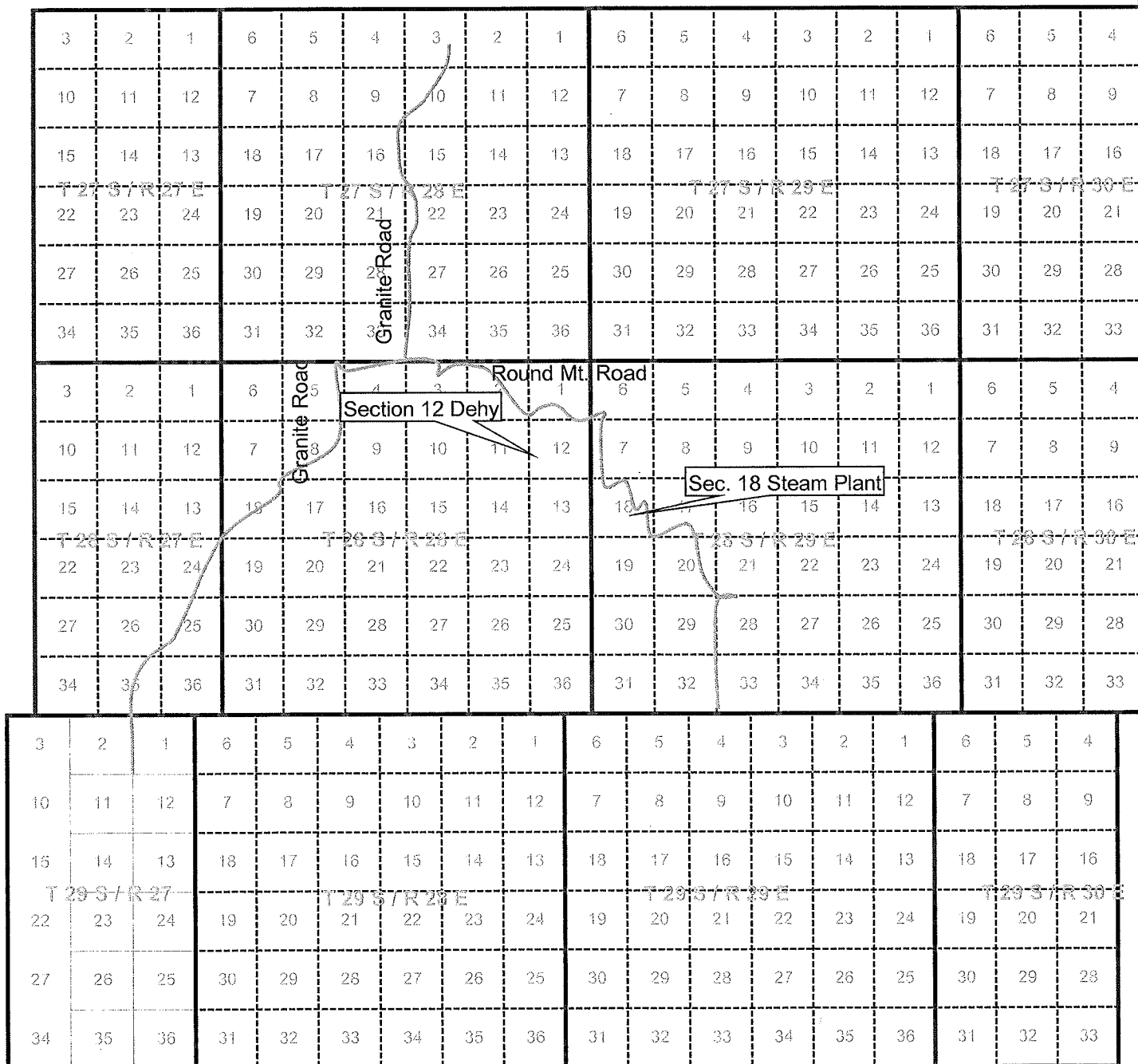
CONDITIONS CONTINUE ON NEXT PAGE

44. An operator shall source test annually all vapor collection and control systems used to control emissions from steam-enhanced crude oil production well vents to determine the control efficiency of the device(s) used for destruction or removal of VOC. Compliance testing shall be performed annually by source testers certified by ARB. Testing shall be performed during June, July, August, or September of each year if the system's control efficiency is dependent upon ambient air temperature. [District Rule 4401 6.2.1] Federally Enforceable Through Title V Permit
45. If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 if all uncondensed VOC emissions collected by a vapor collection and control system are incinerated in fuel burning equipment, an internal combustion engine or in a smokeless flare. [District Rule 4401 6.2.2] Federally Enforceable Through Title V Permit
46. If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 for a vapor control system which does not have a VOC destruction device. [District Rule 4401 6.2.3] Federally Enforceable Through Title V Permit
47. An operator seeking approval pursuant to Section 6.2.2 or Section 6.2.3 shall submit a written request and supporting information to the APCO. The District shall evaluate the request and if approved by the APCO, the District shall provide EPA and ARB with a copy of the evaluation and shall request EPA and ARB approval. The District evaluation and the APCO request shall be deemed approved unless EPA or ARB objects to such approval in writing within 45 days of the receipt of the APCO request. [District Rule 4401 6.2.4] Federally Enforceable Through Title V Permit
48. An operator shall comply with the following requirements for each gauge tank, as defined in Section 3.17 of Rule 4401: Conduct an initial TVP testing of the produced fluid in each gauge tank not later than June 14, 2007. Thereafter, an operator shall conduct periodic TVP testing of each gauge tank at least once every 24 months during summer (July - September), and whenever there is a change in the source or type of produced fluid in the gauge tank. The TVP testing shall be conducted at the actual storage temperature of the produced fluid in the gauge tank using the applicable TVP test method specified in Section 6.4 of Rule 4623 (Storage of Organic Liquids). The operator shall submit the TVP testing results to the APCO as specified in Section 6.1.10 of Rule 4401. [District Rule 4401 6.2.5] Federally Enforceable Through Title V Permit
49. The control efficiency of any VOC control device, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case EPA Method 25a may be used. EPA Method 18 may be used in lieu of EPA Method 25 or EPA Method 25a provided the identity and approximate concentrations of the analytes/compounds in the sample gas stream are known before analysis with the gas chromatograph and the gas chromatograph is calibrated for each of those known analyte/compound to ensure that the VOC concentrations are neither under- or over-reported. [District Rule 4401 6.3.1] Federally Enforceable Through Title V Permit
50. VOC content shall be analyzed by using the latest revision of ASTM Method E168, E169, or E260 as applicable. Analysis of halogenated exempt compounds shall be performed by using ARB Method 432. [District Rule 4401 6.3.2] Federally Enforceable Through Title V Permit
51. Leak inspection, other than audio-visual, and measurements of gaseous leak concentrations shall be conducted according to EPA Method 21 using an appropriate portable hydrocarbon detection instrument calibrated with methane. The instrument shall be calibrated in accordance with the procedures specified in EPA Method 21 or the manufacturer's instruction, as appropriate, not more than 30 days prior to its use. The operator shall record the calibration date of the instrument. Where safety is a concern, such as measuring leaks from compressor seals or pump seals when the shaft is rotating, a person shall measure leaks by placing the instrument probe inlet at a distance of one (1) centimeter or less from the surface of the component interface. [District Rule 4401 6.3.3] Federally Enforceable Through Title V Permit
52. The VOC content by weight percent (wt.%) shall be determined using American Society of Testing and Materials (ASTM) D1945 for gases and South Coast Air Quality Management District (SCAQMD) Method 304-91 or the latest revision of ASTM Method E168, E169 or E260 for liquids. [District Rule 4401 6.3.5] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

53. Operator shall maintain an inspection log in which an operator records, at a minimum, all of the following information for each inspection performed: The total number of components inspected, total number and percentage of leaking components found by component type, location, type, and name or description of each leaking component and description of any unit where the leaking component is found, date of leak detection and the method of leak detection. For gaseous leaks, the leak concentration in ppmv, and for liquid leaks record whether the leak is a major liquid leak or a minor liquid leak. the date of repair, replacement, or removal from operation of leaking components, identify and location of essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, methods used to minimize the leak from essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, the date of re-inspection and the leak concentration in ppmv after the component is repaired or is replaced, the inspector's name, business mailing address, and business telephone number, date and signature of the facility operator responsible for the inspection and repair program certifying the accuracy of the information recorded in the log. [District Rule 4401 6.4] Federally Enforceable Through Title V Permit
54. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

Attachment II Location Map



Macpherson Oil Company

Round Mountain Field

Prepared by:

Insight
Environmental Consultants

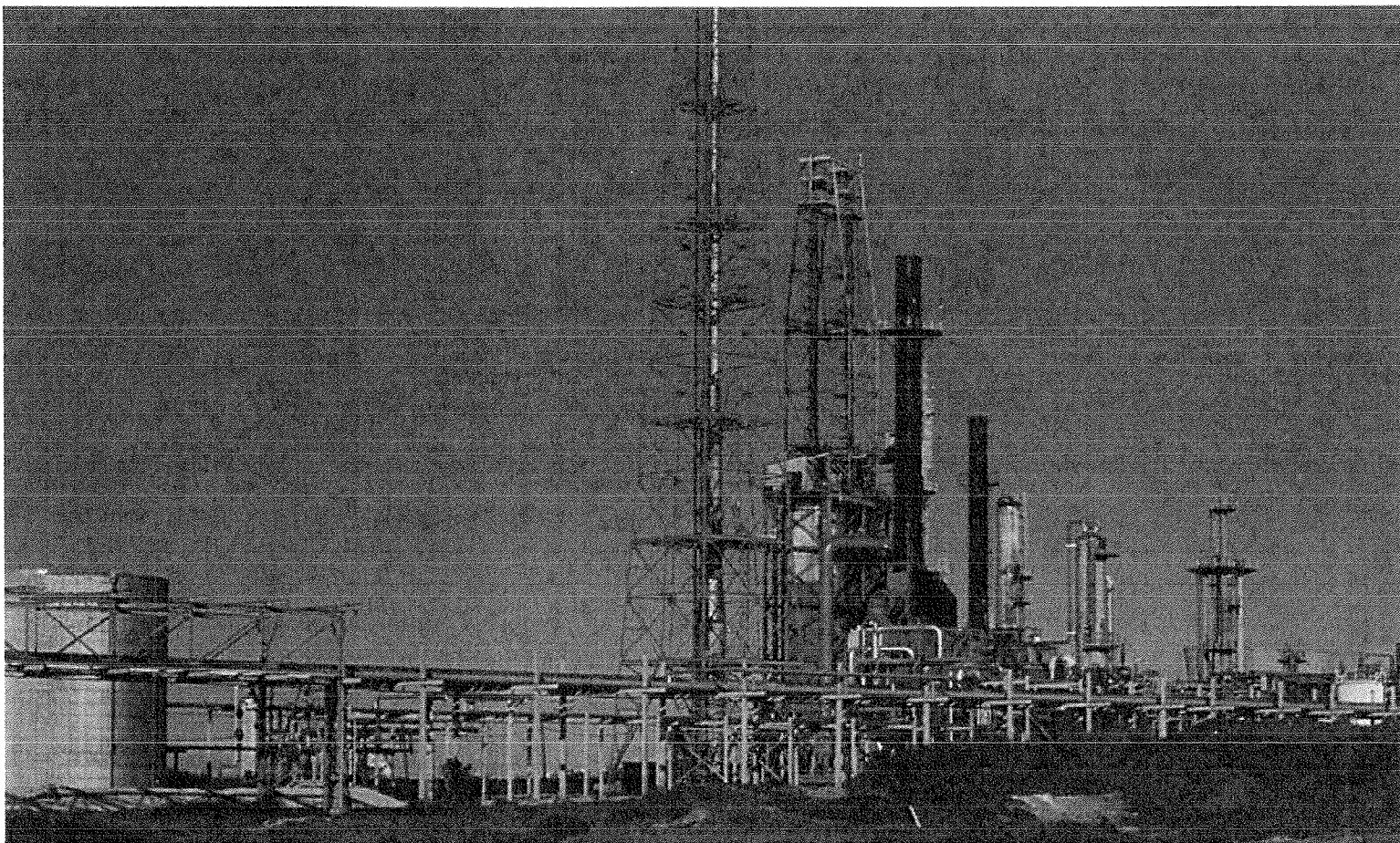
June 2007

Attachment III
New Compressor Station/Manufacturer's Information



The Quincy QRNG.

Bringing Quincy quality to natural gas applications.



*The standard of
compressor excellence.*

Quincy

Compressor

The QRNG Series of Reciprocating Compressors

The Quincy QRNG

We took the best compressor in the industry and made it available for natural gas applications.

In 1920, we manufactured our first compressor, the QR-25. Today, nearly two million QR-25s later, this compressor is the industry leader for performance and reliability. It's a model of durability, too: it's quite common, in fact, to find QR-25s still in use after 20, 30, even 40 years of operation.

But until recently, this incredibly durable compressor had no counterpart for natural gas applications. That's why we developed the QRNG, the only compressor that offers natural gas users the proven performance of the QR-25.

What makes it better?

Like the QR-25, the QRNG is constructed of heavy-duty cast iron for strength and durability. The cylinders are cast with horizontal cooling fins and machined to rigid tolerances. Our precision machining insures optimum clearances, resulting in high volumetric efficiency.

The QRNG also features an advanced-design pressure lubrication system, rebuildable connecting rods, and low-lift valves. From its QR-25 heritage to its unique ability to serve natural gas markets, there's no question that the QRNG is Quincy quality, inside and out.

The Quincy Story

Quincy Compressor manufactures a complete line of compressors and vacuum pumps for virtually every application in which air is used: manufacturing, food and chemical processing, oil and gas fields, hospitals, temperature control, and a host of other industries.

Our reciprocating line, ranging from 1/3-125 h.p., is made at our Quincy, Illinois, headquarters; our rotary screw products, ranging from 7 1/2-600 h.p., are built in

Bay Minette, Alabama, in one of the most technologically advanced plants in the world. With combined manufacturing facilities of nearly 500,000 square feet, we have the capacity to meet the needs of the future, and to maintain our position of industry leadership for decades to come.

Quincy products are sold through a global network of distributors. Technical assistance, parts support, and expedient service are a guaranteed part of every Quincy package.

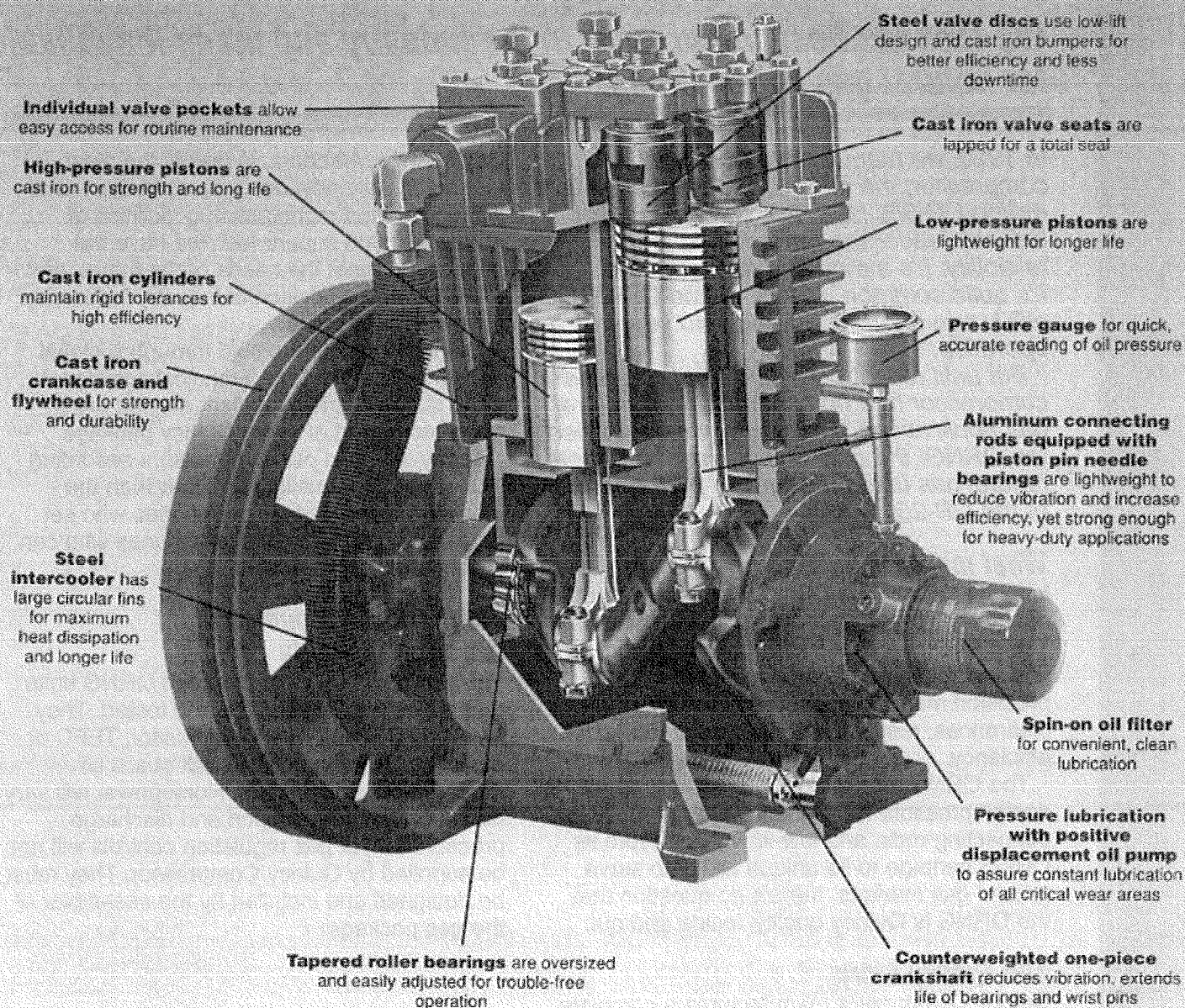
Today we build our compressors according to standards of quality far higher than the industry norms. But we're the ones who set those standards, and we're the ones who can meet them.

Factory base mounted units are now available

You can now buy base mounted QRNG units that are factory assembled and tested. They have the QRNG Basic Compressor, TEFC or explosion proof motor and belt guard all mounted on a base plate. Horsepower will vary based on both the suction and discharge pressures. Inlet gas regulation controls will not be supplied by Quincy Compressor. They must be designed and installed by the assembler of the gas package.



Inside the QRNG



Quality features performing quality functions

- **Slow speed operation** requires less maintenance, produces more CFM per horsepower.
- **Valve design** lets the QRNG run efficiently at lower temperatures.
- **Lubricating system** features advanced-design gerotor oil pump and heavy-duty oil filter for improved life and reliability.
- **Fully counterweighted ductile iron crankshaft**, precision-ground to .0002" roundness.
- **Crankshaft and connecting rods** are rifle-drilled to assure positive pressure lubrication to all critical wear areas.

- **Heavy-duty disc-type valves** with Swedish steel discs, cast iron bumpers and seats for long life.
- **Rebuildable high-strength aluminum alloy connecting rods** equipped with replaceable automotive-type inserts.
- **Piston pin needle bearings** for strength and long life.
- **Crankshaft ends** are supported by large Timken tapered roller main bearings to withstand radial and thrust loads.
- **Large fan-type pulley** for smooth running and efficient heat dissipation.
- **Circular finned intercooler** further increases heat dissipation for higher efficiency and longer life.

No yellow metals

The yellow metals used in QR-25 air compressors have been replaced by steel or aluminum for corrosion resistance. In addition, all seals are made of Viton material for corrosion and wear resistance.

Standard features

- Rebuildable components
- Low maintenance requirements
- Manually reversible oil pump allows application flexibility when used with optional reverse-rotation flywheel

- All three single-stage models are capable of handling inlet pressures from 15" Hg (vacuum) to 50 psig
- Single-stage maximum discharge pressure: 100 psig
- Screw-in dipstick with O-ring seal prevents gases from venting to atmosphere
- Customer connection point for venting of crankcase to a safe area provided
- Two-stage models are capable of handling inlet pressures from 15" Hg vacuum to 30 psig; except model 5120 which is limited to 15 psig max
- Two-stage maximum discharge pressure: 400 psig except model 5120 which is limited to 325 psig max

Specifications

QRNG Single-stage compressors							
Model	Bore & stroke	Min RPM	Max RPM	CFM displacement @max RPM	Max inlet pressure	Max discharge pressure	Max HP
240	4x4x3*	400	900	39.3	50	100	10.9
270	4.5x4.5x4*	400	900	66.3	50	100	18.3
4125	4.5x4.5x4**	400	900	132.5	50	100	34.5

*two-cylinder **four-cylinder

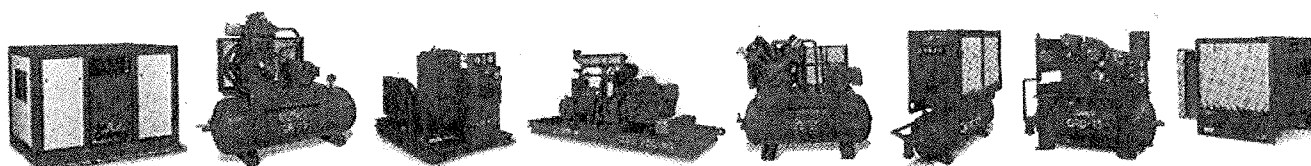
QRNG Two-stage compressors							
Model	Bore & stroke	Min RPM	Max RPM	CFM displacement @max RPM	Max inlet pressure	Max discharge pressure	Max HP
325	4.5x2.5x3*	400	900	24.9	30	400	13.2
340	5.25x3x3.5*	400	900	39.5	30	400	20.0
350	6x3.25x3.5*	400	940	53.7	30	400	23.8
370	6x3.25x4*	400	940	61.6	30	400	27.7
5120	6x3.25x4**	400	940	123.2	15	325	36.5

*two-cylinder **four-cylinder

We reserve the right to change specifications without liability, without advance notice, and without incurring any obligation for products previously or subsequently sold.



Looking for the Quincy Distributor nearest you?
Call toll-free 888.4-AIR-QCY (888.424.7729)



Quincy
 Compressor



Visit our Website at: www.quincycompressor.com

Quincy Compressor, 3501 Wismann Lane, P.O. Box C2, Quincy, Illinois 62305
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Attachment IV Increase in Methane Fugitive Emissions

MOC
S1703,1140704

EPA Protocol for Equipment Leak Emission Estimate
Table 2-4. Oil and Gas Production Operations
Average Emission Factors

Weight percentage of VOC in the total organic compounds in gas (neglect non-organics)? 100 %
Weight percentage of VOC in the total organic compounds in oil (neglect non-organics)? 100 %

Equipment Type	Service	Screening Value EF - TOC		Component Count	VOC emissions (lb/day)
		(kg/hr/source)	(lb/day/source)		
Valves	Gas	4.5E-03	2.381E-01	6,000	1,428.60
	Heavy Oil	8.4E-06	4.445E-04	0	0.00
	Light Oil	2.5E-03	1.323E-01	0	0.00
	Water/Oil	9.8E-05	5.185E-03	0	0.00
Pump Seals	Gas	2.4E-03	1.270E-01	0	0.00
	Heavy Oil	N/A	N/A	0	N/A
	Light Oil	1.3E-02	6.878E-01	0	0.00
	Water/Oil	2.4E-05	1.270E-03	0	0.00
Others	Gas	8.8E-03	4.656E-01	1,200	558.74
	Heavy Oil	3.2E-05	1.693E-03	0	0.00
	Light Oil	7.5E-03	3.968E-01	0	0.00
	Water/Oil	1.4E-02	7.408E-01	0	0.00
Connectors	Gas	2.0E-04	1.058E-02	10,000	105.82
	Heavy Oil	7.5E-06	3.968E-04	0	0.00
	Light Oil	2.1E-04	1.111E-02	0	0.00
	Water/Oil	1.1E-04	5.820E-03	0	0.00
Flanges	Gas	3.9E-04	2.064E-02	12,200	251.75
	Heavy Oil	3.9E-07	2.064E-05	0	0.00
	Light Oil	1.1E-04	5.820E-03	0	0.00
	Water/Oil	2.9E-06	1.534E-04	0	0.00
Open-ended Lines	Gas	2.0E-03	1.058E-01	0	0.00
	Heavy Oil	1.4E-04	7.408E-03	0	0.00
	Light Oil	1.4E-03	7.408E-02	0	0.00
	Water/Oil	2.5E-04	1.323E-02	0	0.00

Total VOC Emissions = 2,344.9 lb/day

HRA

Macpherson Oil Company
Component Increase from Proposed Modification
S-1703-143

Fugitive Emissions Using Screening Emission Factors

California Implementation Guidelines for Estimating Mass Emissions
of Fugitive Hydrocarbon Leaks at Petroleum Facilities
Table IV-2c. Oil and Gas Production
Screening Value Ranges Emission Factors

Percentage of components with $\geq 10,000$ ppmv leaks allowed? 0 %

Equipment Type	Service	Component Count	Total allowable leaking components	Screening Value EF - TOC		TOC emissions (lb/day)
				< 10,000 ppmv (lb/day/source)	$\geq 10,000$ ppmv (lb/day/source)	
Valves	Gas/Light Liquid	6,000	0	1.852E-03	7.333E+00	11.11
	Light Crude Oil	0	0	1.005E-03	3.741E+00	0.00
	Heavy Crude Oil	0	0	7.408E-04	N/A*	0.00
Pump Seals	Gas/Light Liquid	0	0	5.270E-02	4.709E+00	0.00
	Light Crude Oil	0	0	1.402E-02	4.709E+00	0.00
	Heavy Crude Oil	0	0	N/A	N/A	N/A
Others	Gas/Light Liquid	1,200	0	7.778E-03	7.281E+00	9.33
	Light Crude Oil	0	0	6.931E-03	3.757E-01	0.00
	Heavy Crude Oil	0	0	3.016E-03	N/A*	0.00
Connectors	Gas/Light Liquid	10,000	0	6.349E-04	1.370E+00	6.35
	Light Crude Oil	0	0	5.291E-04	1.238E+00	0.00
	Heavy Crude Oil	0	0	4.233E-04	4.233E-04	0.00
Flanges	Gas/Light Liquid	12,200	0	1.482E-03	3.228E+00	18.07
	Light Crude Oil	0	0	1.270E-03	1.376E+01	0.00
	Heavy Crude Oil	0	0	1.217E-03	N/A*	0.00
Open-ended Lines	Gas/Light Liquid	0	0	1.270E-03	2.905E+00	0.00
	Light Crude Oil	0	0	9.524E-04	1.175E+00	0.00
	Heavy Crude Oil	0	0	7.937E-04	3.762E+00	0.00

* Emission factor not available. All components from equipment type and service will be assessed as < 10,000 ppmv

Total Organic Compound (TOC) Emissions = 44.87 lb/day

Methane Wt % of TOC from Gas Analyses = 94.0% 91.1% (2010) 96.9% (2009)
CO2 wt % relative to TOC from Gas Analyses = 262% 344% (2010) 180% (2009)

Methane CO2 (eqv) = 22.84 lb/day x 365 x 0.94 x 23 (CO2 eqv factor) / 2204.6 lbs/metric ton = 81.76 ton / year
CO2 = 22.84 lb/day x 365 x 2.62 / 2204.6 lbs/metric ton = 9.91 ton/year

Total CO2 (eqv) from proposed modification = 81.76 + 9.91 = 91.67 ton / year

Attachment V Gas Analysis

Macpherson Oil Co.
 P.O. Box 5368
 Bakersfield, CA 93388
 Attn: Richard Scholl

 Sampled: 8/21/2012
 Submitted: 8/21/2012
 Analyzed: 8/23/2012
 Reported: 8/27/2012

Gas Analysis by Chromatography - ASTM D 3588-91

 Company: _____
 Location: CVR #1 _____
 Description: _____
 Lab No.: 120826-4
 Sample Time: _____
 Sample Type: _____

Component	Mole %	Weight %	G/MCF
Oxygen	2.07	2.52	
Nitrogen	11.40	12.13	
Carbon Dioxide	30.12	50.34	
Hydrogen	ND	0.00	
Carbon Monoxide	ND	0.00	
Methane	55.75	33.97	
Ethane	0.15	0.17	
Propane	0.52	0.87	0.144
iso-Butane	ND	0.00	0.000
n-Butane	ND	0.00	0.000
iso-Pentane	ND	0.00	0.000
n-Pentane	ND	0.00	0.000
Hexanes Plus	ND	0.00	0.000
Totals	100.00	100.00	0.144

Specific Volume, ft ³ /lb	14.41	Values Corrected for Compressibility	CHONS	Weight %
Compressibility (Z) Factor	0.9974			
Specific Gravity, Calculated	0.9090	0.9110	Carbon	40.022
GROSS			Hydrogen	8.731
BTU/ft ³ Dry	578.8	580.3	Oxygen	39.120
BTU/ft ³ Wet	568.7	570.1	Nitrogen	12.126
BTU/lb Dry	8343.1	8364.7	Sulfur	0.000
BTU/lb Wet	8197.1	8218.3	F FACTOR @	9172
NET			68 deg F, dsc/MMBTU	
BTU/ft ³ Dry	521.4	522.8	F FACTOR @	9034
BTU/ft ³ Wet	512.3	513.6	60 deg F, dsc/MMBTU	
BTU/lb Dry	7516.3	7535.8		
BTU/lb Wet	7384.8	7403.9		

Hydrogen Sulfide, ppm	Not Tested	Method	GC/FPD
Total Sulfur, ppm	Not Tested	Method	ASTMD 3246
Dew Point, deg F	Not Tested	Method	Bureau of Mines
Moisture, lbs H ₂ O/MMCF	Not Tested	Method	Bureau of Mines

ND : None Detected

Tr : Traco



E-mail pgtech@earthlink.net

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Macpherson Oil Co.
P.O. Box 5368
Bakersfield, CA 93388
Attn: Richard Scholl

Sampled: 8/21/2012
Submitted: 8/21/2012
Analyzed: 8/23/2012
Reported: 8/27/2012

Gas Analysis by Chromatography - ASTM D 3588-91

Company:		Lab No.: 120826-5	
Location: CVR #2		Sample Time:	
Description:		Sample Type:	
Component	Mole %	Weight %	G/MCF
Oxygen	4.35	5.56	
Nitrogen	28.35	31.73	
Carbon Dioxide	16.61	29.20	
Hydrogen	ND	0.00	
Carbon Monoxide	ND	0.00	
Methane	49.71	31.87	
Ethane	0.16	0.19	
Propane	0.82	1.45	0.227
iso-Butane	ND	0.00	0.000
n-Butane	ND	0.00	0.000
iso-Pentane	ND	0.00	0.000
n-Pentane	ND	0.00	0.000
Hexanes Plus	ND	0.00	0.000
Totals	100.00	100.00	0.227
Specific Volume, ft ³ /lb	15.16	Values Corrected for Compressibility	
Compressibility (Z) Factor	0.9982	CHONS	Weight %
Specific Gravity, Calculated	0.8641	0.8653	
GROSS		Carbon	33.168
BTU/ft ³	Dry	Hydrogen	8.313
	Wet	Oxygen	26.792
BTU/lb	Dry	Nitrogen	31.727
	Wet	Sulfur	0.000
BTU/lb		F FACTOR @	9158
NET		60 deg F, dsc/MMBTU	
BTU/ft ³	Dry		
	Wet		
BTU/lb	Dry	F FACTOR @	9021
	Wet	60 deg F, dsc/MMBTU	
BTU/lb			
Hydrogen Sulfide, ppm	Not Tested	Method	GC/FPD
Total Sulfur, ppm	Not Tested	Method	ASTMD 3246
Dew Point, deg F	Not Tested	Method	Bureau of Mines
Moisture, lbs H ₂ O/MMCF	Not Tested	Method	Bureau of Mines

ND : None Detected

Tr : Trace

Macpherson Oil Co.
 P.O. Box 5368
 Bakersfield, CA 93388
 Attn: Richard Scholl

 Sampled: 8/21/2012
 Submitted: 8/21/2012
 Analyzed: 8/23/2012
 Reported: 8/27/2012

Gas Analysis by Chromatography - ASTM D 3588-91

Company:		Lab No.: 120826-6	
Location: CVR #3		Sample Time:	
Description:		Sample Type:	
Component	Mole %	Weight %	G/MCF
Oxygen	2.84	3.47	
Nitrogen	18.72	20.02	
Carbon Dioxide	25.66	43.11	
Hydrogen	ND	0.00	
Carbon Monoxide	ND	0.00	
Methane	51.70	31.67	
Ethane	0.19	0.22	
Propane	0.89	1.50	0.247
iso-Butane	ND	0.00	0.000
n-Butane	ND	0.00	0.000
iso-Pentane	ND	0.00	0.000
n-Pentane	ND	0.00	0.000
Hexanes Plus	ND	0.00	0.000
Totals	100.00	100.00	0.247
Specific Volume, ft ³ /lb	14.49	Values Corrected for Compressibility	
Compressibility (Z) Factor	0.9977	CHONS Weight %	
Specific Gravity, Calculated	0.9042	0.9059	
GROSS		Carbon	36.883
BTU/ft ³ Dry	548.1	Hydrogen	8.279
Wet	538.5	Oxygen	34.818
BTU/lb Dry	7941.3	Nitrogen	20.020
Wet	7802.3	Sulfur	0.000
NET		F FACTOR @	9216
BTU/ft ³ Dry	494.0	68 deg F, dscf/MMBTU	
Wet	485.3	F FACTOR @	9077
BTU/lb Dry	7157.4	60 deg F, dscf/MMBTU	
Wet	7032.2		
Hydrogen Sulfide, ppm	Not Tested	Method	GC/FPD
Total Sulfur, ppm	Not Tested	Method	ASTMD 3246
Dew Point, deg F	Not Tested	Method	Bureau of Mines
Moisture, lbs H ₂ O/MMCF	Not Tested	Method	Bureau of Mines

ND : None Detected

Tr : Trace



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Bakersfield, CA 93388
Attn: Richard Scholl

Sampled: 8/21/2012
Submitted: 8/21/2012
Analyzed: 8/23/2012
Reported: 8/27/2012

Gas Analysis by Chromatography - ASTM D 3588-91

Company:		Lab No.: 120826-7	
Location: CVR #4		Sample Time:	
Description:		Sample Type:	
Component	Mole %	Weight %	GMCF
Oxygen	2.85	3.30	
Nitrogen	16.76	16.98	
Carbon Dioxide	32.09	51.07	
Hydrogen	ND	0.00	
Carbon Monoxide	ND	0.00	
Methane	47.61	27.62	
Ethane	0.17	0.18	
Propane	0.53	0.85	0.146
iso-Butane	ND	0.00	0.000
n-Butane	ND	0.00	0.000
iso-Pentane	ND	0.00	0.000
n-Pentane	ND	0.00	0.000
Hexanes Plus	ND	0.00	0.000
Totals	100.00	100.00	0.146
Specific Volume, ft ³ /lb	13.72	Values Corrected for Compressibility	
Compressibility (Z) Factor	0.9975		
Specific Gravity, Calculated	0.9546	0.9567	CHONS
GROSS			Weight %
BTU/ft ³ Dry	497.2	498.4	Carbon 35.457
BTU/ft ³ Wet	488.5	489.7	Hydrogen 7.133
BTU/lb Dry	6823.3	6840.3	Oxygen 40.431
BTU/lb Wet	6703.9	6720.6	Nitrogen 16.979
NET			Sulfur 0.000
BTU/ft ³ Dry	447.9	449.1	F FACTOR @ 9355
BTU/ft ³ Wet	440.1	441.2	88 deg F, dsc/MMBTU
BTU/lb Dry	6147.8	6163.2	F FACTOR @ 9215
BTU/lb Wet	6040.3	6055.3	60 deg F, dsc/MMBTU
Hydrogen Sulfide, ppm	Not Tested	Method	GC/FPD
Total Sulfur, ppm	Not Tested	Method	ASTMD 3246
Dew Point, deg F	Not Tested	Method	Bureau of Mines
Moisture, lbs H ₂ O/MMCF	Not Tested	Method	Bureau of Mines

ND: None Detected

Tr: Trace

Attachment VI Emissions Profile

Permit #: S-1703-143-20	Last Updated
Facility: MACPHERSON OIL COMPANY	03/25/2014 EDGEHILR

Equipment Pre-Baselined: NO

	<u>NOX</u>	<u>SOX</u>	<u>PM10</u>	<u>CO</u>	<u>VOC</u>
Potential to Emit (lb/Yr):	0.0	0.0	0.0	0.0	0.0
Daily Emis. Limit (lb/Day)	0.0	0.0	0.0	0.0	0.0
Quarterly Net Emissions Change (lb/Qtr)					
Q1:	0.0	0.0	0.0	0.0	0.0
Q2:	0.0	0.0	0.0	0.0	0.0
Q3:	0.0	0.0	0.0	0.0	0.0
Q4:	0.0	0.0	0.0	0.0	0.0
Check if offsets are triggered but exemption applies	N	N	N	N	N
Offset Ratio					
Quarterly Offset Amounts (lb/Qtr)					
Q1:					
Q2:					
Q3:					
Q4:					

Attachment VII SSPE Calculation

Macpherson Oil Company				Existing SSPEI				
				lb/year				
Facility	Unit	Mo	Equipment Description	NOx	SOx	PM10	CO	VOC
S-1703	2	1	2.28 MM btu/hr Locomotive Boiler	Permit surrendered for S-1703-192-0				
S-1703	3	1	2.28 MM btu/hr Locomotive Boiler	Permit surrendered for S-1703-192-0				
S-1703	4	1	5.25 MM btu/hr Locomotive Boiler	Permit surrendered for S-1703-192-0				
S-1703	5	3	5.0 MM btu/hr Locomotive Boiler	Permit surrendered for S-1703-192-0				
S-1703	12	4	2,500 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	16	6	500 Bbl Petroelum Storage Tank	0	0	0	0	9,593
S-1703	17	4	500 Bbl Petroelum Storage Tank	0	0	0	0	9,593
S-1703	18	4	500 Bbl Petroelum Storage Tank	0	0	0	0	9,593
S-1703	19	4	5,000 Bbl Petroelum Storage Tank	0	0	0	0	94,576
S-1703	20	4	5,000 Bbl Petroelum Storage Tank	0	0	0	0	94,576
S-1703	21	4	3,000 Bbl Petroelum Storage Tank	0	0	0	0	56,751
S-1703	22	4	3,000 Bbl Petroelum Storage Tank	0	0	0	0	56,751
S-1703	23	4	2,000 Bbl Petroelum Storage Tank	0	0	0	0	38,286
S-1703	24	4	2,000 Bbl Petroelum Storage Tank	0	0	0	0	38,286
S-1703	25	4	2,000 Bbl Petroelum Storage Tank	0	0	0	0	38,286
S-1703	26	4	100 Bbl Petroelum Storage Tank	0	0	0	0	1,904
S-1703	27	3	10 MM Btu/hr Kaldair Flare	0	0	0	0	0
S-1703	28	4	450 Bhp Internal Combustion Engine	Permit surrendered for S-1703-192-0				
S-1703	29	4	450 Bhp Internal Combustion Engine	Permit surrendered for S-1703-192-0				
S-1703	67	1	Gasoline Storage Tanks	Replaced by S-1703-199				
S-1703	73	1	1,000 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	74	1	1,000 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	75	1	1,000 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	76	3	1,000 Bbl Petroelum Storage Tank	0	0	0	0	19,157
S-1703	77	3	1,000 Bbl Petroelum Storage Tank	0	0	0	0	19,157
S-1703	78	3	1,000 Bbl Petroelum Storage Tank	0	0	0	0	19,157
S-1703	79	3	1,000 Bbl Petroelum Storage Tank	0	0	0	0	19,157
S-1703	80	3	1,000 Bbl Petroelum Storage Tank	0	0	0	0	19,157
S-1703	81	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	82	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	83	1	1,500 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	84	1	1,000 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	85	1	1,000 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	86	1	1,000 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	87	1	1,500 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	88	1	1,500 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	89	1	1,500 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	90	1	1,500 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	91	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	92	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	93	3	500 Bbl Petroelum Storage Tank	0	0	0	0	9,593
S-1703	94	4	250 Bbl Petroelum Storage Tank	0	0	0	0	9,335
S-1703	95	3	1,000 Bbl Petroelum Storage Tank	Proposed offset for Sand Removal Basin				
S-1703	96	3	1,000 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	97	3	500 Bbl Petroelum Storage Tank	Tank removed in December 2009. Permit surrendered 6/2011.				
S-1703	98	1	5,000 Bbl Petroelum Storage Tank	Tank abandoned. Permit surrendered 12/2008				
S-1703	99	3	500 Bbl Petroelum Storage Tank	Tank removed in December 2009. Permit surrendered 6/2011.				
S-1703	100	3	500 Bbl Petroelum Storage Tank	Tank removed in December 2009. Permit surrendered 6/2011.				
S-1703	101	3	500 Bbl Petroelum Storage Tank	Tank removed in December 2009. Permit surrendered 6/2011.				

Macpherson Oil Company				Existing SSPEI				
Facility	Unit	Mo	Equipment Description	NOx	SOx	PM10	CO	VOC
S-1703	102	3	100 Bbl Petroelum Storage Tank	0	0	0	0	1,904
S-1703	103	3	100 Bbl Petroelum Storage Tank	0	0	0	0	1,904
S-1703	104	3	100 Bbl Petroelum Storage Tank	0	0	0	0	1,904
S-1703	105	3	2,500 Bbl Petroelum Storage Tank	Tank removed in December 2009. Permit surrendered 6/2011.				
S-1703	106	3	1,000 Bbl Petroelum Storage Tank	Tank removed in December 2009. Permit surrendered 6/2011.				
S-1703	107	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	108	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	109	3	2,500 Bbl Petroelum Storage Tank	Tank replaced by replacement tank XXX May 2012				
S-1703	113	3	1,000 Bbl Petroelum Storage Tank	0	0	0	0	19,157
S-1703	114	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	115	3	100 Bbl Petroelum Storage Tank	0	0	0	0	1,904
S-1703	116	3	100 Bbl Petroelum Storage Tank	0	0	0	0	1,904
S-1703	117	3	100 Bbl Petroelum Storage Tank	0	0	0	0	1,904
S-1703	118	3	500 Bbl Petroelum Storage Tank	0	0	0	0	9,593
S-1703	119	3	500 Bbl Petroelum Storage Tank	0	0	0	0	9,593
S-1703	120	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	126	3	1,000 Bbl Petroelum Storage Tank	0	0	0	0	19,157
S-1703	127	3	250 Bbl Petroelum Storage Tank	Tank removed in December 2009. Permit surrendered 6/2011.				
S-1703	128	3	1,500 Bbl Petroelum Storage Tank	Tank removed in December 2009. Permit surrendered 6/2011.				
S-1703	129	3	1,500 Bbl Petroelum Storage Tank	0	0	0	0	28,393
S-1703	130	3	2,000 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	131	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	132	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	133	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	134	3	TEOR Operation with 6 wells	0	0	0	0	6,132
S-1703	139	8	10,000 Bbl Petroelum Storage Tank	0	0	0	0	0
S-1703	140	7	6,000 Bbl Petroelum Storage Tank	0	0	0	0	0
S-1703	141	3	5,000 Bbl Petroelum Storage Tank	0	0	0	0	94,576
S-1703	142	1	750 Bbl Petroelum Storage Tank	Permit surrendered for S-1703-192-0				
S-1703	143	19	TEOR Operation with 250 wells	0	0	0	0	0
S-1703	144	17	2,000 Bbl Petroelum Storage Tank	0	0	0	0	0
S-1703	145	8	1,000 Bbl Petroelum Storage Tank	0	0	0	0	0
S-1703	146	8	10,000 Bbl Petroelum Storage Tank	0	0	0	0	0
S-1703	150	8	3,300 Bbl Petroelum Storage Tank	Replaced by S-1703-209				
S-1703	152	7	2,500 Bbl Petroelum Storage Tank	0	0	0	0	0
S-1703	154	2	TEOR Operation with 6 wells	Combined with S-1703-143-3. Permit cancelled.				
S-1703	156	3	5,000 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	157	11	62.5 MM Btu/hr Steam Generator	4,653	1,560	3,285	10,081	1,643
S-1703	158	10	62.5 MM Btu/hr Steam Generator	4,653	1,560	3,285	10,081	1,643
S-1703	159	12	62.5 MM Btu/hr Steam Generator	4,653	1,560	3,285	10,081	1,643
S-1703	160	12	62.5 MM Btu/hr Steam Generator	4,653	1,560	3,285	10,081	1,643
S-1703	161	15	62.5 MM Btu/hr Steam Generator	4,653	1,560	3,285	10,081	1,643
S-1703	162	11	62.5 MM Btu/hr Steam Generator	4,653	1,560	4,161	10,081	1,643
S-1703	163	3	5,000 Bbl Petroelum Storage Tank	0	0	0	0	94,576
S-1703	164	3	750 Bbl Petroelum Storage Tank	0	0	0	0	14,213
S-1703	165	3	1,000 Bbl Petroelum Storage Tank	0	0	0	0	19,157
S-1703	166	3	100 Bbl Petroelum Storage Tank	0	0	0	0	1,904
S-1703	167	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240
S-1703	168	3	2,500 Bbl Petroelum Storage Tank	0	0	0	0	47,240

Macpherson Oil Company			Existing SSPEI					
Facility	Unit	Mo	Equipment Description	NOx	SOx	lb/year PM10	CO	VOC
S-1703	169	3	100 Bbl Petroelum Storage Tank	0	0	0	0	1,904
S-1703	170	7	3,400 Bbl Petroelum Storage Tank	0	0	0	0	0
S-1703	171	7	100 Bbl Petroelum Storage Tank	0	0	0	0	0
S-1703	172	3	250 Bbl Petroelum Storage Tank	Tank removed in December 2009. Permit surrendered 6/2011.				
S-1703	173	3	250 Bbl Petroelum Storage Tank	0	0	0	0	4,801
S-1703	174	3	250 Bbl Petroelum Storage Tank	0	0	0	0	4,801
S-1703	175	3	100 Bbl Petroelum Storage Tank	0	0	0	0	1,904
S-1703	176	3	100 Bbl Petroelum Storage Tank	0	0	0	0	1,904
S-1703	177	3	500 Bbl Petroelum Storage Tank	0	0	0	0	9,593
S-1703	178	3	500 Bbl Petroelum Storage Tank	0	0	0	0	9,593
S-1703	179	3	3,000 Bbl Petroelum Storage Tank	0	0	0	0	56,751
S-1703	180	11	62.5 MM Btu/hr Steam Generator	4,653	1,560	4,928	10,081	1,643
S-1703	181	9	62.5 MM Btu/hr Steam Generator	4,653	1,560	4,161	10,081	3,833
S-1703	183	2	2,000 Bbl Petroelum Storage Tank	Tank removed in December 2009. Permit surrendered 6/2011.				
S-1703	184	9	10,000 Bbl Petroelum Storage Tank	0	0	0	0	0
S-1703	185	0	450 Bbl Petroleum Storage Tank	Not Implemented - ATC was Canceled				
S-1703	186	4	2,000 Bbl Petroleum Storage Tank	0	0	0	0	0
S-1703	187	2	500 Bbl Petroleum Storage Tank	Replaced by S-1703-203				
S-1703	191	1	500 Bbl Petroleum Storage Tank	0	0	0	0	0
S-1703	192	2	62.5 MM Btu/hr Steam Generator	4,653	1,560	4,161	10,081	3,285
S-1703	193	0	10,000 Bbl Water Tank	0	0	0	0	0
S-1703	194	1	Sand Removal Basin	0	0	0	0	2,190
S-1703	195	0	10,000 Bbl Wastewater Tank	0	0	0	0	0
S-1703	196	0	217 Bhp Emergency Generator	0	0	0	0	0
S-1703	197	0	10,000 Bbl Petroleum Storage Tank	0	0	0	0	0
S-1703	198	0	85 MM Btu/hr Steam Generator	5,213	2,122	2,234	13,711	4,095
S-1703	199	0	Gasoline Dispensing Operation	0	0	0	0	66
S-1703	200	0	10,000 Bbl Petroleum Storage Tank	0	0	0	0	0
S-1703	201	0	908 Bbl WEMCO	0	0	0	0	0
S-1703	202	0	908 Bbl WEMCO	0	0	0	0	0
S-1703	203	0	1,000 Bbl Fixed Roof Slop Tank	0	0	0	0	0
S-1703	204	0	85 MM Btu/hr Steam Generator	5,213	2,122	2,234	13,711	4,095
S-1703	205	0	1,000 Bbl Fixed Roof Stock Tank	0	0	0	0	0
S-1703	206	0	500 Bbl Fixed Roof Stock Tank	0	0	0	0	0
S-1703	207	0	906 Bbl WEMCO	0	0	0	0	0
S-1703	208	0	6,200 Bbl Fixed Roof Storage Tank	0	0	0	0	0
S-1703	209	0	1500 Bbl FWKO	0	0	0	0	0
S-1703	210	0	85 MM Btu/hr Steam Generator	5,213	2,122	2,234	13,711	4,095
S-1703	211	0	7000 Bbl Wash Tank replacing '109	0	0	0	0	0
S-1703	212	0	85 MM Btu/hr Steam Generator	5,213	2,122	2,234	13,711	4,095
S-1703	213	0	85 MM Btu/hr Steam Generator	5,213	2,122	2,234	13,711	4,095
S-1703	214	0	10,000 Bbl Petroleum Storage Tank	0	0	0	0	0
S-1703	215	0	10,000 Bbl Petroleum Storage Tank	0	0	0	0	0
S-1703	216	0	85 MM Btu/hr Steam Generator	5,213	2,122	2,234	13,711	4,095
			SSPEI (lb/yr) =	73,155	26,772	47,240	172,995	1,736,079
			SSPEI (ton/yr) =	36.6	13.4	23.6	86.5	868.0

Attachment VIII
Title V Compliance Certification Form

**San Joaquin Valley
Unified Air Pollution Control District**


TITLE V MODIFICATION - COMPLIANCE CERTIFICATION FORM


I. TYPE OF PERMIT ACTION (Check appropriate box)


- ☐ SIGNIFICANT PERMIT MODIFICATION ☐ ADMINISTRATIVE
☒ MINOR PERMIT MODIFICATION AMENDMENT


COMPANY NAME: Macpherson Oil Company		FACILITY ID: S - 1703
1. Type of Organization:	<input checked="" type="checkbox"/> Corporation <input type="checkbox"/> Sole Ownership <input type="checkbox"/> Government <input type="checkbox"/> Partnership <input type="checkbox"/> Utility	
2. Owner's Name:		
3. Agent to the Owner:		

II. COMPLIANCE CERTIFICATION (Read each statement carefully and initial all circles for confirmation):

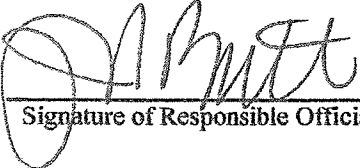
 Based on information and belief formed after reasonable inquiry, the source identified in this application will continue to comply with the applicable federal requirement(s).

 Based on information and belief formed after reasonable inquiry, the source identified in this application will comply with applicable federal requirement(s) that will become effective during the permit term, on a timely basis.

 Corrected information will be provided to the District when I become aware that incorrect or incomplete information has been submitted.

 Based on information and belief formed after reasonable inquiry, information and statements in the submitted application package, including all accompanying reports, and required certifications are true accurate and complete.

I declare, under penalty of perjury under the laws of the state of California, that the forgoing is correct and true:



Signature of Responsible Official

2/21/14

Date

Jody Butler

Name of Responsible Official (please print)

Operations Superintendent

Title of Responsible Official (please print)

Add wells to the existing TEOR operation.

Attachment IX
HRA

San Joaquin Valley Air Pollution Control District

Risk Management Review

To: Richard Edgehill – Permit Services
From: Kyle Melching – Technical Services
Date: March 27, 2014
Facility Name: Macpherson Oil Co
Location: HOCSS
Application #(s): S-1703-143-20
Project #: S-1140704

A. RMR SUMMARY

RMR Summary			
Categories	TEOR Operation (Unit 143-20)	Project Totals	Facility Totals
Prioritization Score	0.00	0.00	>1
Acute Hazard Index	0.02	0.02	0.04
Chronic Hazard Index	0.00	0.00	0.02
Maximum Individual Cancer Risk	3.01E-08	3.01E-08	4.32E-06
T-BACT Required?	No		
Special Permit Conditions?	No		

I. Project Description

Technical Services received a request on March 25, 2014, to perform a Risk Management Review to add up to 350 thermally enhanced oil recovery (TEOR) wells increasing the number of approved wells from 250 to 600. Additional heat exchangers, knockouts, separators, condensate pumps, and compressor station will be installed as necessary to handle the expected increase in gas volume. Applicant is also requesting the option to operate the wells with open or closed casing vents.

II. Analysis

Toxic emissions from the project were calculated using a District approved spreadsheet for Oilfield Equipment Fugitive - District, along with increased VOC fugitive emission rates calculated and supplied by the processing engineer. In accordance with the District's *Risk Management Policy for Permitting New and Modified Sources* (APR 1905-1, March 2, 2001), risks from the project were prioritized using the procedures in the 1990 CAPCOA Facility Prioritization Guidelines and incorporated in the District's HEART's database. The prioritization score for the project was less than 1.0 (see RMR Summary Table); however, the facility's combined prioritization scores totaled to greater than one. Therefore, a refined Health Risk Assessment was required and performed for the project. AERMOD was used with area source parameters outlined below and concatenated 5-year meteorological data from Bakersfield to determine maximum dispersion factors at the nearest residential and

business receptors. The dispersion factors were input into the HARP model to calculate the Chronic and Acute Hazard Indices and the Carcinogenic Risk.

The following parameters were used for the review:

Analysis Parameters (Unit 143-20)			
Source Type	Area (8 Identical) Various Sec/Township/Range	Closest Receptor (m)	1448
Average Release Height (m)	1	Type of Receptor	Residence
Length of Sides (m)	7.62	Location Type	Rural
% of VOC's Per Source	12.5	VOC Emissions (lb/hr)	1.17
		VOC Emissions (lb/yr)	10,271

III. Conclusions

The acute and chronic indices are below 1.0; and the maximum individual cancer risk associated with the project is **3.01E-08**, which is less than the 1 in a million threshold. In accordance with the District's Risk Management Policy, the project is approved **without** Toxic Best Available Control Technology (T-BACT).

These conclusions are based on the data provided by the applicant and the project engineer. Therefore, this analysis is valid only as long as the proposed data and parameters do not change.

IV. Attachments

- A. RMR request from the project engineer
- B. Additional information from the applicant/project engineer
- C. Prioritization score w/ toxic emissions summary
- D. HARP Risk Report
- E. Facility Summary

Attachment X
Draft ATC

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT

PERMIT NO: S-1703-143-20

LEGAL OWNER OR OPERATOR: MACPHERSON OIL COMPANY

MAILING ADDRESS: PO BOX 5368
BAKERSFIELD, CA 93388

LOCATION: HEAVY OIL CENTRAL STATIONARY SOURCE
CA

SECTION: NE20 **TOWNSHIP:** 28S **RANGE:** 29E

EQUIPMENT DESCRIPTION:

MODIFICATION OF THERMALLY ENHANCED OIL RECOVERY (TEOR) OPERATION SERVING UP TO 250 WELLS INCLUDING HEAT EXCHANGERS, SEPARATORS, KNOCKOUTS AND COMPRESSOR STATIONS WITH OPEN OR CLOSED CASING VENTS CONNECTED TO WELL VENT VAPOR CONTROL SYSTEM AND TANK VAPOR CONTROL SYSTEMS S-1703-139, -144, AND -184 SERVED BY H2S SCRUBBER SYSTEM WITH COMPRESSED VAPOR PIPING TO STEAM GENERATORS S-1703-157, '-158, '-159, '-160, '-161, AND '-162 FOR INCINERATION OF NONCONDENSIBLE VAPORS OR TO GAS DISPOSAL WELL; ADD UP TO 350 THERMALLY ENHANCED CRUDE OIL PRODUCTION WELLS, HEAT EXCHANGERS, GAS/LIQUID SEPARATORS, KNOCKOUTS, CONDENSATE PUMPS, AND COMPRESSOR STATIONS, AND ALLOW OPERATION OF WELLS WITH OPEN OR CLOSED VENTS

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District Rule 2201] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. ATC shall be implemented concurrently with or subsequent to ATC S-1703-143-19. [District Rule 2201] Federally Enforceable Through Title V Permit
4. TEOR wells are authorized at Sections 7, 17, 18, 19 and 20 T28S/R29E and at Sections 12 and 13 T28S/R28E. [District Rule 2201] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

DAVID WARNER, Director of Permit Services

S-1703-143-20 : Mar 26 2014 8:08AM -- EDGEHILR : Joint Inspection NOT Required

5. The operation shall be equipped with heat exchangers, free water knockouts, gas liquid separators, vapor compressors with electric motors, and compressed vapor piping to any of the following steam generators S-1703-157, -158, -159, -160, -161, or -162. [District NSR Rule] Federally Enforceable Through Title V Permit
6. Noncondensibles shall be incinerated in steam generators S-1703-157, -158, -159, -160, -161, or -162 or injected into DOGGR-approved disposal well. [District NSR Rule] Federally Enforceable Through Title V Permit
7. During the time any steam-enhanced crude oil production well is undergoing service or repair while the well is not producing, it shall be exempt from the emission control requirements of District Rule 4401, 5.0 (as amended January 15, 1998). [District Rule 4401, 4.1] Federally Enforceable Through Title V Permit
8. The crude oil production from wells associated with this permit unit shall not lie within 1000 feet of an air injection well used for in-situ combustion. [District Rule 4407, 2.0, 3.4, and 3.5] Federally Enforceable Through Title V Permit
9. All required source testing shall conform to the compliance testing procedures described in District Rule 1081 (as amended December 16, 1993). [District Rule 1081] Federally Enforceable Through Title V Permit
10. The VOC content of the gas shall not exceed 10% by weight. [District Rule 2201] Federally Enforceable Through Title V Permit
11. Operator shall conduct quarterly gas sampling for gas exiting the separator pressure vessel to qualify for exemption from fugitive component counts for components handling fluids with VOC content equal to or less than 10% by weight. If gas samples are equal to or less than 10% VOC by weight for 8 consecutive quarterly samplings, sampling frequency shall only be required annually. [District Rule 2201] Federally Enforceable Through Title V Permit
12. VOC content of gas shall be determined by ASTM D1945, ASTM D1946, EPA Method 18 referenced as methane, or equivalent test method with prior District approval. [District Rule 2201] Federally Enforceable Through Title V Permit
13. {4272} Gas and liquid leaks are as defined in Section 3.20 of Rule 4401. [District Rule 4401 3.20] Federally Enforceable Through Title V Permit
14. {4273} An operator shall not operate a steam-enhanced crude oil production well unless the operator complies with either of the following requirements: The steam-enhanced crude oil production well vent is closed and the front line production equipment downstream of the wells that carry produced fluids (crude oil or mixture of crude oil and water) is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401, the well vent may be temporarily opened during periods of attended service or repair of the well provided such activity is done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere, or the steam-enhanced crude oil production well vent is open and the well vent is connected to a VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401, 5.5.1 and 5.5.2] Federally Enforceable Through Title V Permit
15. {4274} An operator shall be in violation of this rule if any District inspection demonstrates or if any operator inspection conducted pursuant to Section 5.8 of Rule 4401 demonstrates the existence of an open-ended line or a valve located at the end of the line that is not sealed with a blind flange, plug, cap, or a second closed valve that is not closed at all times, except during attended operations as defined by Section 5.6.2.1 of Rule 4401 requiring process fluid flow through the open-ended lines, a component with a major liquid leak, or a component with a gas leak greater than 50,000 ppmv. [District Rule 4401 5.6.2] Federally Enforceable Through Title V Permit
16. {4275} An operator shall be in violation of this rule if any District inspection demonstrates or if any operator inspection conducted pursuant to Section 5.8 of Rule 4401 demonstrates the existence of any combination of components with minor liquid leaks, minor gas leaks, or a gas leaks greater than 10,000 ppmv up to 50,000 ppmv that totals more than number of leaks allowed by Table 3 of Rule 4401. [District Rule 4401 5.6.2] Federally Enforceable Through Title V Permit
17. {4276} An operator shall not use any component with a leak as defined in Section 3.0 of Rule 4401, or that is found to be in violation of the provisions of Section 5.6.2 of Rule 4401. However, components that were found leaking may be used provided such leaking components have been identified with a tag for repair, are repaired, or awaiting re-inspection after being repaired within the applicable time frame specified in Section 5.9 of Rule 4401. [District Rule 4401 5.7.1] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

18. {4277} Each hatch shall be closed at all times except during sampling or adding of process material through the hatch, or during attended repair, replacement, or maintenance operations, provided such activities are done as expeditiously as possible with minimal spillage of material and VOC emissions to the atmosphere. [District Rule 4401 5.7.2] Federally Enforceable Through Title V Permit
19. {4278} An operator shall comply with the requirements of Section 6.7 of Rule 4401 if there is any change in the description of major components or critical components. [District Rule 4401 5.7.3] Federally Enforceable Through Title V Permit
20. The annual inspection requirements of Section 5.8.1 through Section 5.8.5 of Rule 4401 shall not apply to components exclusively handling gas/vapor or liquid with a VOC content of ten percent by weight (10 wt %) or less, as determined by the test methods in Section 6.3.5 of Rule 4401. [District Rule 4401 4.9] Federally Enforceable Through Title V Permit
21. {4279} Except for pipes and unsafe-to-monitor components, an operator shall inspect all other components pursuant to the requirements of Section 6.3.3 of Rule 4401 at least once every year. [District Rule 4401 5.8.1] Federally Enforceable Through Title V Permit
22. {4280} An operator shall visually inspect all pipes at least once every year. Any visual inspection of pipes that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected within 24 hours after detecting the leak. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of Rule 4401. [District Rule 4401 5.8.2] Federally Enforceable Through Title V Permit
23. {4281} In addition to the inspections required by Section 5.8.1 of Rule 4401, an operator shall inspect for leaks all accessible operating pumps, compressors, and PRDs in service as follows: An operator shall audio-visually (by hearing and by sight) inspect for leaks all accessible operating pumps, compressors, and PRDs in service at least once each calendar week. Any audio-visual inspection of an accessible operating pump, compressor, and PRD performed by an operator that indicates a leak that cannot be immediately repaired to meet the leak standards of this rule shall be inspected not later than 24 hours after conducting the audio-visual inspection. If a leak is found, the leak shall be repaired as soon as practicable but not later than the time frame specified in Table 4 of Rule 4401. [District Rule 4401 5.8.3] Federally Enforceable Through Title V Permit
24. {4282} In addition to the inspections required by Sections 5.8.1, 5.8.2 and 5.8.3 of Rule 4401, operator shall perform the following: initially inspect a PRD that releases to the atmosphere as soon as practicable but not later than 24 hours after the discovery of the release, re-inspect the PRD not earlier than 24 hours after the initial inspection but not later than 15 calendar days after the initial inspection, inspect all new, replaced, or repaired fittings, flanges, and threaded connections within 72 hours of placing the component in service. Except for PRDs subject to the requirements of Section 5.8.4.1 of Rule 4401, an operator shall inspect a component that has been repaired or replaced not later than 15 calendar days after the component was repaired or replaced. [District Rule 4401 5.8.4] Federally Enforceable Through Title V Permit
25. {4283} An operator shall inspect all unsafe-to-monitor components during each turnaround. [District Rule 4401 5.8.5] Federally Enforceable Through Title V Permit
26. {4284} District inspection in no way fulfills any of the mandatory inspection requirements that are placed upon operators and cannot be used or counted as an inspection required of an operator. [District Rule 4401 5.8.6] Federally Enforceable Through Title V Permit
27. {4285} An operator shall affix a readily visible weatherproof tag to a leaking component upon detection of the leak and shall include the following information on the tag: date and time of leak detection, date and time of leak measurement, for a gaseous leak, the leak concentration in ppmv, for a liquid leak, whether it is a major liquid leak or a minor liquid leak, whether the component is an essential component, an unsafe-to monitor component, or a critical component. [District Rule 4401 5.9.1] Federally Enforceable Through Title V Permit
28. {4286} An operator shall keep the tag affixed to the component until an operator has met all of the following conditions: repaired or replaced the leaking component, re-inspected the component using the test method in Section 6.3.3, and 5.9.2.3 of Rule 4401, or the component is found to be in compliance with the requirements of this rule. [District Rule 4401 5.9.2] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

29. {4287} An operator shall minimize a component leak in order to stop or reduce leakage to the atmosphere immediately to the extent possible, but not later than one (1) hour after detection of the leak. [District Rule 4401 5.9.3] Federally Enforceable Through Title V Permit
30. {4288} Except for leaking critical components or leaking essential components subject to the requirements of Section 5.9.7 of Rule 4401, if an operator has minimized a leak but the leak still exceeds the applicable leak limits as defined in Section 3.0 of Rule 4401, an operator shall comply with at least one of the following requirements as soon as practicable but not later than the time period specified in Table 4 of Rule 4401: Repair or replace the leaking component; or vent the leaking component to a VOC collection and control system as defined in Section 3.0 of Rule 4401, or remove the leaking component from operation. [District Rule 4401 5.9.4] Federally Enforceable Through Title V Permit
31. {4289} The repair period in calendar days shall not exceed 14 days for minor gas leaks, 5 days for major gas leaks less than or equal to 50,000 ppmv, 2 days for gas leak greater than 50,000 ppmv, 3 days for minor liquid leaks, 2 days for major liquid leaks. [District Rule 4401 5.9.4] Federally Enforceable Through Title V Permit
32. {4290} The leak rate measured after leak minimization has been performed shall be the leak rate used to determine the applicable repair period specified in Table 4 of Rule 4401. [District Rule 4401 5.9.5] Federally Enforceable Through Title V Permit
33. {4291} The time of the initial leak detection shall be the start of the repair period specified in Table 4 of Rule 4401. [District Rule 4401 5.9.6] Federally Enforceable Through Title V Permit
34. {4292} If the leaking component is an essential component or a critical component that cannot be immediately shut down for repairs, and if the leak has been minimized but the leak still exceeds the applicable leak standard of this rule, the operator shall repair or replace the essential component or critical component to eliminate the leak during the next process unit turnaround, but in no case later than one year from the date of the original leak detection, whichever comes earlier. [District Rule 4401 5.9.7] Federally Enforceable Through Title V Permit
35. {4293} The operator of any steam-enhanced crude oil production well shall maintain records of the date and well identification where steam injection or well stimulation occurs. [District Rule 4401 6.1.1] Federally Enforceable Through Title V Permit
36. {4295} An operator of any steam-enhanced crude oil production well shall keep source test records which demonstrate compliance with the control efficiency requirements of the VOC collection and control system as defined in Section 3.0 of Rule 4401. [District Rule 4401 6.1.3] Federally Enforceable Through Title V Permit
37. {4296} The results of source tests conducted pursuant to Section 4.6.2 of Rule 4401 shall be submitted to the APCO within 60 days after the completion of the source test. [District Rule 4401 6.1.4] Federally Enforceable Through Title V Permit
38. {4297} Operator of any steam-enhanced crude oil production well shall keep an inspection log maintained pursuant to Section 6.4 of Rule 4401. [District Rule 4401 6.1.5] Federally Enforceable Through Title V Permit
39. {4298} Records of each calibration of the portable hydrocarbon detection instrument utilized for inspecting components, including a copy of current calibration gas certification from the vendor of said calibration gas cylinder, the date of calibration, concentration of calibration gas, instrument reading of calibration gas before adjustment, instrument reading of calibration gas after adjustment, calibration gas expiration date, and calibration gas cylinder pressure at the time of calibration shall be maintained. [District Rule 4401 6.1.6] Federally Enforceable Through Title V Permit
40. {4299} An operator shall maintain copies at the facility of the training records of the training program operated pursuant to Section 6.5 of Rule 4401. [District Rule 4401 6.1.7] Federally Enforceable Through Title V Permit
41. {4300} Operator shall keep a copy of the APCO-approved Operator Management Plan at the facility. [District Rule 4401 6.1.8] Federally Enforceable Through Title V Permit
42. {4301} Operator shall submit to the APCO not later than June 14, 2007 a list of all gauge tanks, as defined in Section 3.17. The list shall contain the size, identification number, the location of each gauge tank and specify whether the gauge tank is upstream of all front line production equipment. [District Rule 4401 6.1.9] Federally Enforceable Through Title V Permit

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CONDITIONS CONTINUE ON NEXT PAGE

43. {4302} The results of gauge tank TVP testing conducted pursuant to Section 6.2.5 shall be submitted to the APCO within 60 days after the completion of the testing. [District Rule 4401 6.1.10] Federally Enforceable Through Title V Permit
44. {4303} An operator that discovers that a PRD has released shall record the date that the release was discovered, and the identity and location of the PRD that released. An operator shall submit such information recorded during the calendar year to the APCO no later than 60 days after the end of the calendar year. [District Rule 4401 6.1.11] Federally Enforceable Through Title V Permit
45. {4304} An operator shall source test annually all vapor collection and control systems used to control emissions from steam-enhanced crude oil production well vents to determine the control efficiency of the device(s) used for destruction or removal of VOC. Compliance testing shall be performed annually by source testers certified by ARB. Testing shall be performed during June, July, August, or September of each year if the system's control efficiency is dependent upon ambient air temperature. [District Rule 4401 6.2.1] Federally Enforceable Through Title V Permit
46. {4305} If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 if all uncondensed VOC emissions collected by a vapor collection and control system are incinerated in fuel burning equipment, an internal combustion engine or in a smokeless flare. [District Rule 4401 6.2.2] Federally Enforceable Through Title V Permit
47. {4306} If approved by EPA, ARB, and the APCO, an operator need not comply with the annual testing requirement of Section 6.2.1 for a vapor control system which does not have a VOC destruction device. [District Rule 4401 6.2.3] Federally Enforceable Through Title V Permit
48. {4307} An operator seeking approval pursuant to Section 6.2.2 or Section 6.2.3 shall submit a written request and supporting information to the APCO. The District shall evaluate the request and if approved by the APCO, the District shall provide EPA and ARB with a copy of the evaluation and shall request EPA and ARB approval. The District evaluation and the APCO request shall be deemed approved unless EPA or ARB objects to such approval in writing within 45 days of the receipt of the APCO request. [District Rule 4401 6.2.4] Federally Enforceable Through Title V Permit
49. {4308} An operator shall comply with the following requirements for each gauge tank, as defined in Section 3.17 of Rule 4401: Conduct an initial TVP testing of the produced fluid in each gauge tank not later than June 14, 2007. Thereafter, an operator shall conduct periodic TVP testing of each gauge tank at least once every 24 months during summer (July - September), and whenever there is a change in the source or type of produced fluid in the gauge tank. The TVP testing shall be conducted at the actual storage temperature of the produced fluid in the gauge tank using the applicable TVP test method specified in Section 6.4 of Rule 4623 (Storage of Organic Liquids). The operator shall submit the TVP testing results to the APCO as specified in Section 6.1.10 of Rule 4401. [District Rule 4401 6.2.5] Federally Enforceable Through Title V Permit
50. {4309} The control efficiency of any VOC control device, measured and calculated as carbon, shall be determined by EPA Method 25, except when the outlet concentration must be below 50 ppm in order to meet the standard, in which case EPA Method 25a may be used. EPA Method 18 may be used in lieu of EPA Method 25 or EPA Method 25a provided the identity and approximate concentrations of the analytes/compounds in the sample gas stream are known before analysis with the gas chromatograph and the gas chromatograph is calibrated for each of those known analyte/compound to ensure that the VOC concentrations are neither under- or over-reported. [District Rule 4401 6.3.1] Federally Enforceable Through Title V Permit
51. {4310} VOC content shall be analyzed by using the latest revision of ASTM Method E168, E169, or E260 as applicable. Analysis of halogenated exempt compounds shall be performed by using ARB Method 432. [District Rule 4401 6.3.2] Federally Enforceable Through Title V Permit
52. {4311} Leak inspection, other than audio-visual, and measurements of gaseous leak concentrations shall be conducted according to EPA Method 21 using an appropriate portable hydrocarbon detection instrument calibrated with methane. The instrument shall be calibrated in accordance with the procedures specified in EPA Method 21 or the manufacturer's instruction, as appropriate, not more than 30 days prior to its use. The operator shall record the calibration date of the instrument. Where safety is a concern, such as measuring leaks from compressor seals or pump seals when the shaft is rotating, a person shall measure leaks by placing the instrument probe inlet at a distance of one (1) centimeter or less from the surface of the component interface. [District Rule 4401 6.3.3] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

53. {4312} The VOC content by weight percent (wt.%) shall be determined using American Society of Testing and Materials (ASTM) D1945 for gases and South Coast Air Quality Management District (SCAQMD) Method 304-91 or the latest revision of ASTM Method E168, E169 or E260 for liquids. [District Rule 4401 6.3.5] Federally Enforceable Through Title V Permit
54. {4313} Operator shall maintain an inspection log in which an operator records, at a minimum, all of the following information for each inspection performed: The total number of components inspected, total number and percentage of leaking components found by component type, location, type, and name or description of each leaking component and description of any unit where the leaking component is found, date of leak detection and the method of leak detection. For gaseous leaks, the leak concentration in ppmv, and for liquid leaks record whether the leak is a major liquid leak or a minor liquid leak. the date of repair, replacement, or removal from operation of leaking components, identify and location of essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, methods used to minimize the leak from essential components and critical components found leaking that cannot be repaired until the next process unit turnaround or not later than one year after leak detection, whichever comes earlier, the date of re-inspection and the leak concentration in ppmv after the component is repaired or is replaced, the inspector's name, business mailing address, and business telephone number, date and signature of the facility operator responsible for the inspection and repair program certifying the accuracy of the information recorded in the log. [District Rule 4401 6.4] Federally Enforceable Through Title V Permit
55. All records shall be maintained and retained on-site for a period of at least 5 years and shall be made available for District inspection upon request. [District Rule 1070]

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